



Research & Development Statistics 1982-83

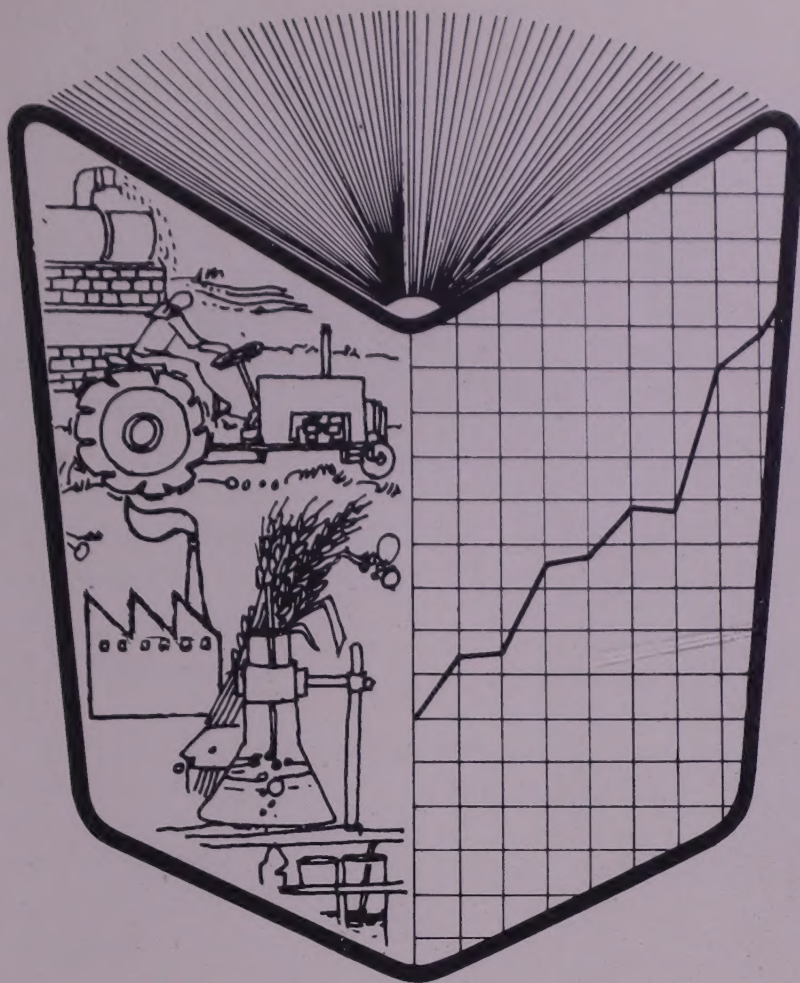


सत्यमेव जयते

(GOVERNMENT OF INDIA)

DEPARTMENT OF SCIENCE & TECHNOLOGY

NEW DELHI



Research & Development Statistics 1982-83



(GOVERNMENT OF INDIA)

DEPARTMENT OF SCIENCE & TECHNOLOGY

NEW DELHI

JAIN BOOK AGENCY

C-9 Connaught Place,
NEW DELHI-110001.

Phone : 351663 & 350806,



CONTENTS

| | PAGE NO. |
|--|----------|
| FOREWORD | (iii) |
| HIGHLIGHTS | (v) |
| CHAPTER 1 National Resources for Science & Technology | 1 |
| II Scientific and Technical Manpower | 7 |
| III R&D in the Central Sector | 11 |
| IV R&D in the State Sector | 15 |
| V R&D in the Industrial Sector | 19 |
| VI Higher Education & Scientific Research | 25 |
| VII Applications of R&D | 27 |
| VIII International Comparison | 29 |
| IX Science & Technology Plan | 31 |
| TABLES | |
| 1 Trends in National Expenditure on Research, Development and Related Scientific and Technological Activities 1948-49 to 1983-84 | 35 |
| 2. Expenditure on S&T in Relation to GNP 1958-59 to 1982-83 | 36 |
| 3. Expenditure on R&D at Current and Constant prices 1978-79 to 1982-83 | 36 |
| 4. R&D Expenditure by Major Scientific Agencies under the Central Government | 37 |
| 5. R&D Expenditure by Central Ministries/Departments from 1980-81 to 1982-83 | 38 |
| 6. Expenditure on Research and Development by State Governments from 1980-81 to 1982-83 | 39 |
| 7. R&D expenditure by Cooperative Research Associations from 1980-81 to 1982-83 | 40 |
| 8. R&D expenditure by Public Sector Undertakings, 1982-83 | 41 |
| 9. R&D expenditure by Industry Group for Private Sector Industries | 43 |
| 10. R&D expenditure by Industry Group for Public Sector Industries | 44 |
| 11. Industrial R&D expenditure, expenditure on Advertising, New Plant Equipment versus sales turnover from 1980-81 to 1982-83 | 45 |
| 12. R&D & S&T Expenditure by type of work by Central and State Govts. from 1980-81 to 1982-83 | 45 |
| 13. R&D expenditure by Objectives from 1980-81 to 1982-83 | 46 |
| 14. R&D expenditure by Field of Science | 48 |
| 15. Stock of Scientific and Technical Personnel 1950-1985 | 48 |
| 16. Estimated Stock, Number of Economically Active Persons, Unemployment and Employment of Scientific & Technical Persons in 1980 and 1985 | 49 |
| 17. Full time equivalent of manpower employed in R&D Establishments (as on 1.4.1982) | 50 |

| | | |
|-----|---|----|
| 18. | Women Personnel in Different Sectors and Different Categories in R&D Establishments (as on 1.4.1982)..... | 50 |
| 19. | Patent Applications Filed during the period 1973-74 to 1982-83..... | 51 |
| 20. | Number of Applications for Patents from Persons in India & Abroad during the period 1973-74 to 1982-83..... | 52 |
| 21. | Applications for patents filed in year 1981-82 & 1982-83 from different States..... | 53 |
| 22. | Royalty and Premia earned by NRDC from 1973-74 to 1982-83..... | 53 |
| 23. | Applications for patents filed in the year 1981-82 & 1982-83 by foreign countries..... | 54 |
| 24. | Per capita R&D expenditure, R&D expenditure as % of GNP for Selected countries..... | 54 |
| 25. | Scientists, Engineers & Technicians for selected countries..... | 55 |
| 26. | S&T expenditure/outlays in Sixth Five Year Plan (1980-85)..... | 56 |

| | | | |
|----------|----|--|-----|
| APPENDIX | 1. | Institutions under Central Government..... | 59 |
| | 2. | Institutions under State Government..... | 75 |
| | 3. | Universities, Deemed Universities and Institutes of National Importance..... | 81 |
| | 4. | Private Sector R&D Units..... | 87 |
| | 5. | Questionnaires and letters for 1982-83 survey..... | 119 |

FOREWORD

Trained and skilled manpower are among the major resources inputs for science and technology activities. It is necessary to have a well organised information and analysis system to examine trend in this growth, and adequacy of resources. Towards this end, the Department of Science and Technology undertakes regular national surveys to collect information on the resources devoted to science and technology activities in the country. The surveys have been carried out keeping in view the UNESCO recommendations regarding International Standardisation of Statistics on Science & Technology.

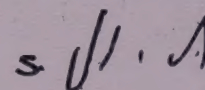
The present publication covers the data for the years 1981-82 and 1982-83. The publication also gives the forecast for expenditure on science and technology for 1983-84 and 1984-85. The forecast has been arrived at based on standard estimation procedure.

The report analyses the trend in the R&D and related science and technology expenditure for the different sectors of the economy. Within each sector, detailed break-up of science and technology data by objectives, by field of science and by industry groups are given. Detailed tables containing data in an organised form have been given and these have been supplemented in the various

chapters of the pictorial presentations. It would be observed that for the first time, the science and technology expenditure of the country has crossed the Rs. 1,000 crore mark, and the expenditure as percentage of G.N.P. has increased from 0.71% in the previous year to 0.85%. The report also contains a list of research institutions including in-house R&D units in the industrial sectors.

It is realised that any national survey of this type may suffer due to limitations such as estimates which have to be made in case of non-receipt of data. Attempts have however been made to minimise the error by following well established statistical procedure for estimating data for non-responding units.

The preparation of the report has been made possible by the cooperation of all the scientific institutions in the country. It is hoped that their cooperation would be forthcoming in the future years as well. I also wish to place on record our appreciation of the work done by Dr. (Mrs.) A.R. Rajeswari, S/Shri R.R. Gulati and R. Chetal and other staff of the unit in the compilation of the data and preparation of the report. Special mention may be made of the software program developed by Shri R. Chetal for processing, compilation, tabulation and analysis of data.



(S. VARADARAJAN)

Secretary to the Government of India

HIGHLIGHTS

- India's expenditure on R&D and related S&T activities in 1982-83 was Rs. 1237.56 crores. This represents 23% increase over the expenditure for 1981-82. The figure for the year 1983-84 is estimated to be of the order of Rs. 1430 crores.
- 0.85% of the GNP was devoted to R&D and related S&T activities in the country in 1982-83. About 18% of the expenditure was devoted to basic research, about 37% to applied research, about 30% to experimental development and the rest 15% for other activities.
- About 87% of the expenditure on S&T in 1982-83 was incurred by the Government sources and the rest of 13% by the Private Sector. 90% of the expenditure incurred by the Government sources came from the Central Government and the rest 10% by the State Governments.
- Two thirds of the expenditure incurred by the Central Government came from the major scientific agencies like CSIR, ICAR, ICMR, Atomic Energy, Space etc. and the rest from the Central Ministries/Departments.
- The expenditure on R&D and related S&T activities by the State Governments increased from about Rs. 76 crores in 1980-81 to Rs. 113 crores in 1982-83. About 92% was incurred on the development of agriculture, forestry and fishing.
- Rs. 286 crores was spent on R&D by the industrial sector in 1982-83. This expenditure was incurred by 600 in-house R&D units of the Private Sector and 68 units in Public Sector.
- The industrial establishments devoted about 0.63% of their turnover on R&D in 1982-83. About 23% of the total expenditure by the Industrial Sector was in the group Electricals and Electronics.
- The total stock of economically active S&T personnel at the beginning of 1980 was estimated to be of the order of 20 lakhs. It is expected to increase to about 25 lakhs during 1985.
- As on 1.4.1982, about 1.97 lakh personnel were employed in S&T institutions in the country. About 36% of these were engaged in R&D activities, about 31% were engaged in auxilliary scientific technical activities and the rest 33% were providing administrative support. About 62% of the total R&D personnel were employed by the Central Government; about 19% each were engaged by the State Governments and the private sector. For each R&D personnel under the Central Government; the number of auxilliary and administrative personnel were 1.13 & 1.08 respectively.
- 6% of the total personnel employed in R&D establishments were known to be females. A little over one fourth were directly engaged in research activities while a little less than half were performing auxilliary activities and the rest were providing administrative and non-technical support.
- The sixth plan allocation for Science & Technology was Rs. 3406.14 crores. More than one fifth of this allocation was for the sector Agriculture and Irrigation.
- During the year 1982-83, 3085 applications were received for patents out of which only 37% were on the name of Indians. Of the 1227 applications sealed during the year, only about one third were in the name of Indians. Of the applications for patents received from Indians, about 25% originated from the state of Maharashtra. 37% of the applications received from foreign countries were from USA.
- Institutions engaged in R&D published about 7500 papers, books and other reports. About 3200 S&T personnel from these Institutions attended national and International seminars.
- NRDC, a clearing house for technologies generated in the national laboratories earned a royalty of about one crore during 1982-83.

CHAPTER I

NATIONAL RESOURCES FOR SCIENCE & TECHNOLOGY

The national expenditure on R&D and related S&T activities has increased from Rs. 813.64 crores in 1981-82 to Rs. 1237.56 crores in 1982-83 and is expected to touch the figure of about Rs. 1430.00 crores in 1983-84. The yearly growth of S&T expenditure at current prices from 1980-81 is of the order of 23%. At constant prices, the yearly growth is however about 13%.

In 1982-83, about 23% of the expenditure was incurred by the industrial sector comprising public and private sectors and the rest 67% by the institutional sector. 87% of the total expenditure came from government sources and the rest 13% from the private sector. About 90% of the expenditure incurred by Government sector came from the Central Government and the rest 10% from the State Governments. Of the total expenditure for R&D in the country by the institutional sector, about 18% was spent for basic research which is slightly less than that for the earlier year, about 37% for applied research, 30% for experimental development and the rest 15% for other activities. Comparison of these figures with the earlier data reveal that roughly about one fifth of the entire expenditure for research and development is devoted to basic research about three fourth to applied research and experimental development and the rest is spent on other activities.

Expenditure on R&D and related S&T activities was 0.71% of the GNP in 1980-81 which increased to 0.76% in 1981-82 and 0.85% in 1982-83. It may be seen that there has been a steep increase in the S&T expenditure as percentage of GNP for 1982-83 as compared to the earlier period. No doubt there has been an upward trend in the R&D spending in 1982-83 but it has also to be borne in mind that the growth rate of GNP over the previous period which was 24% in 1980-81 dropped down to 16% in 1981-82 and 10% in 1982-83. On the contrary R&D expenditure registered a growth of 19% in 1980-81, 24% in 1981-82 and 23% in 1982-83. That is to say, that R&D expenditure during the last three years is growing faster than the GNP at current prices.

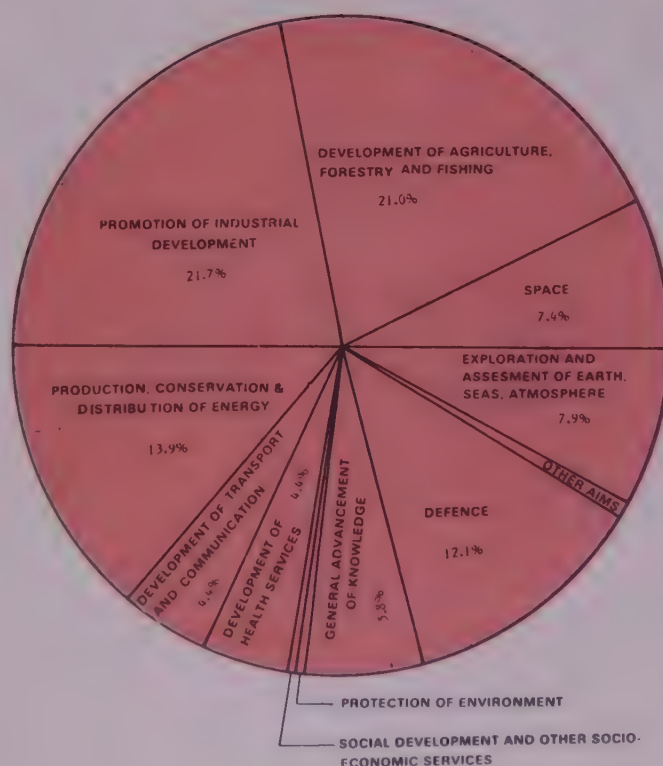
Revenue expenditure accounted for about two thirds of the total expenditure at the national level. Its sector-

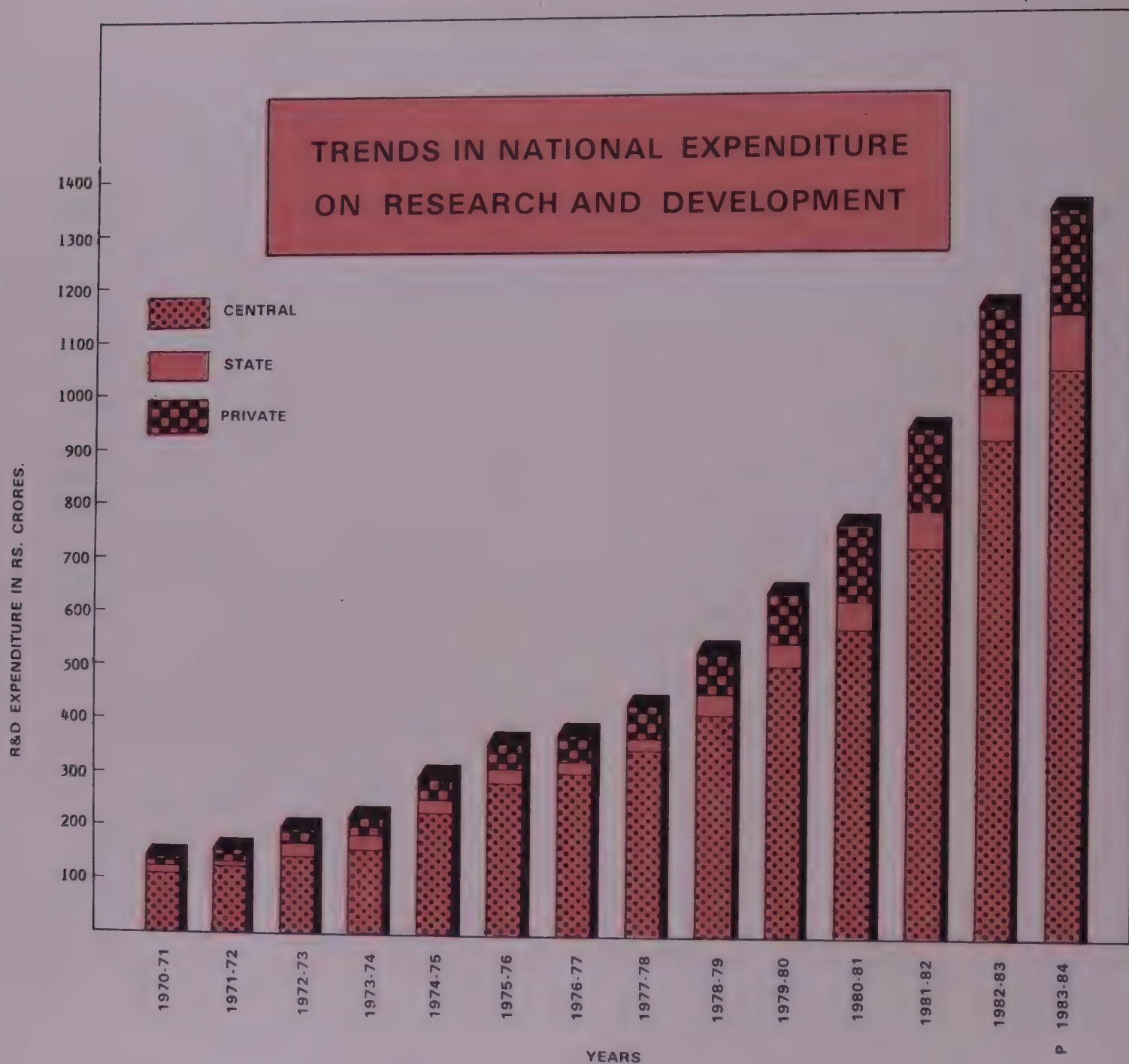
wise break up for the year 1982-83 is given in Table 1.1.

Table 1.1.
**PERCENTAGE BREAK UP OF EXPENDITURE
INTO CAPITAL, REVENUE BY SECTOR, 1982-83**

| Name of the Sector | Percentage | | |
|---|------------|------|-------|
| | Rev. | Cap. | Total |
| Central Sector excluding Public Sector Undertakings | 68 | 32 | 100 |
| Central Sector-Public Sector Undertakings | 67 | 33 | 100 |
| State Sector | 83 | 17 | 100 |
| Private Sector | 64 | 36 | 100 |
| Overall | 67 | 33 | 100 |

**PERCENTAGE DISTRIBUTION OF
R&D EXPENDITURE DEVOTED TO THE
VARIOUS OBJECTIVES DURING 1982-83.**





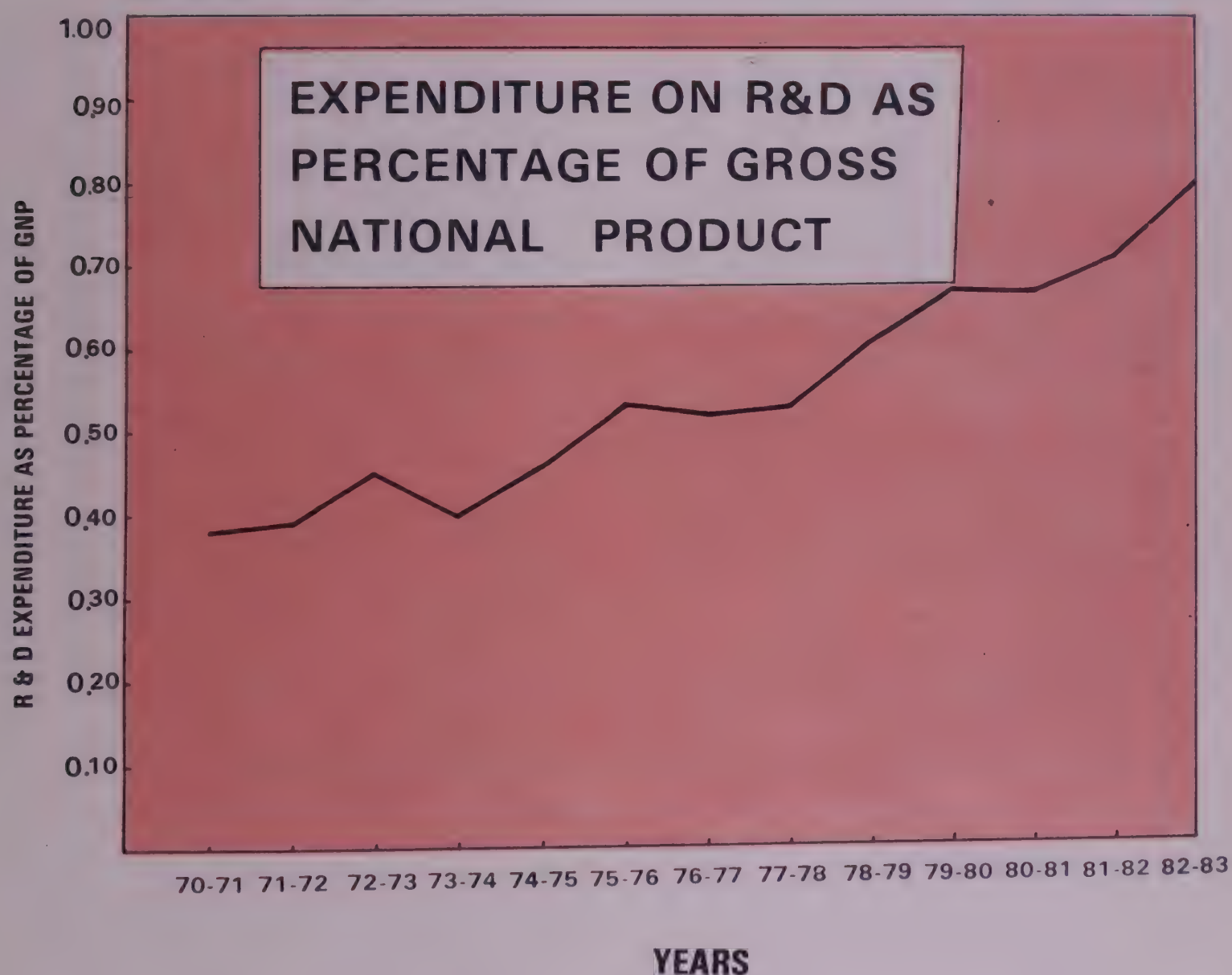
It may be seen that for the State Sector the revenue expenditure is comparatively very high. As has been mentioned elsewhere in this publication agriculture is the predominant activity in this sector which does not entail high level of capital expenditure.

UNESCO has laid down 13 objectives for apportioning the entire national R&D expenditure. As per guidelines laid down by them each research project has to be assigned to some specific objective after which aggregation is to be attempted for various objectives. At the present juncture such an exercise is operationally not feasible in this country taking into account the size of the country and the large number of projects handled by each institution. Alternatively a rough method has been adopted by assigning each institution to a specific objective depending on its predominant activity. On this basis, the per-

tage allocation for various objectives is given in Table 1.2.

Table 1.2
PERCENTAGE BREAK UP OF EXPENDITURE
BY VARIOUS OBJECTIVES

| Name of objective | Percentage allocation |
|---|-----------------------|
| Promotion of industrial development | 21.7 |
| Development of Agriculture, Forestry and Fishing | 21.0 |
| Defence | 13.8 |
| Exploration and assessment of earth, seas atmosphere etc. | 7.9 |
| Space | 7.4 |
| Others | 28.2 |



On a similar basis the expenditure by various fields of sciences is given in Table 1.3

Table 1.3
PERCENTAGE BREAK UP OF EXPENDITURE
BY VARIOUS FIELDS OF SCIENCE

| Field of Science | Percentage allocation |
|----------------------------|-----------------------|
| Natural Sciences | 44 |
| Engineering and Technology | 33 |
| Agriculture | 19 |
| Medical Sciences | 4 |

The expenditure on R&D and related S&T activities by the central sector has increased from Rs. 617 crores in 1980-81 to Rs. 964 crores in 1982-83. About two third of this was incurred by ten major scientific agencies like Department of Space, ICAR, ICMR, etc. and the rest by other Ministries/Departments. The expenditure by the State Governments has increased from Rs. 76 crores in 1980-81 to Rs. 113 crores in 1982-83. The State Governments of Gujarat, Karnataka, Maharashtra, M.P. account for about 45% of the total expenditure by State Sector. Most of the expenditure by the State Sector is incurred by the Agricultural Universities and consequently 92% of their expenditure is devoted for development of agriculture, forestry, etc.

Of the total expenditure incurred by industrial sector about 57% came from the private sector and the 43% from the public sector. The industrial establishments devoted about 0.63% of their turn-over for R&D during 1982-83. Almost about one fourth of the total expenditure was incurred by the industry group electrical and electronics.

The total stock of economically active S&T personnel at the beginning of 1980 was estimated to be about 20 lakhs. This figure is expected to touch 25 lakh mark in 1985. As on 1.4.1982 about 1.97 lakh personnel were employed in S&T institutions in the country. About 36% of these were directly engaged in R&D activities about 31% were engaged in auxilliary activities and the rest 33% were providing administrative support. About 62% of the total R&D personnel were employed by the Central Government. About 19% each were employed by the State Governments and the private sector. About 6% of the total personnel were known to be females. A little

over one fourth of them were engaged in research about half of them were providing administrative support.

Though some advances have been made in quantifying returns from investments in research yet it is not possible at present to measure all monetary benefits of investment in this area. However, attempts have been made to quantify outputs by using different yardsticks. A straight forward measure used to gauge the output of R&D is the patent statistics over a number of years. In this country the number of applications for patents received in 1982-83 was 3085 as against 2989 during the previous year. About 37% of the applications received in 1982-83 were in the name of Indians. Of the total applications filed within the country, about 50% came from the States of Maharashtra and U.T. of Delhi. The number of patents sealed during year 1982-83 was 1227 as against 1357 during the previous year. The number of applications received in 1982-83 was 18620 as against 17930 during the preceding year. 82% of the patents were in the name of foreigners and the rest 18% were in the name of Indian personnel.

The number of papers published or the seminars attended could also be regarded as a measure of productivity of R&D. About 7500 papers/books, etc. were published by the reporting R&D units and about 3200 S&T personnel attended national and international seminars. National Research Development Corporation, is a clearing house for technologies generated by national laboratories. During the last 30 years it has received about 2200 technologies from the various R&D institutions and has executed nearly 2800 agreements for transfer of technology. On an average, royalty and premia earned by it is of the order of Rs. 1 crore per annum.

The Sixth Plan allocation for S&T amounts to Rs. 3406.14 crores as against Rs. 1380.64 crores during the earlier plan period. About one fifth of this allocation is for the promotion of agriculture and irrigation.

To sum up the national expenditure on R&D and related S&T activities has increased from Rs. 814 crores in 1980-81 to Rs. 1238 crores in 1982-83 and is expected to touch the figure of Rs. 1430 crores in 1983-84. 87% of the total expenditure came from the government sources. About one fifth of the expenditure was incurred for basic research and about three fourth on applied research and experimental development. 0.85% of the GNP was spent on R&D and related S&T activities. The industrial establishments spent 0.63% of their turnover on R&D. The total stock of economically active S&T personnel at the beginning of 1980 was estimated to be 20

lakhs and it was expected to touch 25 lakhs mark in 1985. About 1.97 lakh personnel were employed in S&T institutions out of which 36% were directly engaged in R&D activity, 31% were engaged in auxilliary activities and the rest were providing administrative support. 1227 patents

were sealed during 1982-83. 18620 patents were in force in 1982-83 out of which 82% were in the name of foreigners. About 7500 papers were published annually and 3200 S&T personnel attended national and international seminars.

CHAPTER II

SCIENTIFIC AND TECHNICAL MANPOWER

S&T personnel constitute one of the most important input needed for the development of science and technology in the country. The Scientific Policy Resolution 1958 enunciates one of its aims to be "to ensure an adequate supply within the country of research scientist of the highest quality and to recognise their work as an important component of the strength of the nation". In keeping with this resolve, the Government has been taking all steps to fulfill the above statement, both in letter and spirit. The facilities for teaching science and technology have substantially been expanded over the years. The number of Universities has increased from 20 in 1950 to 148 in 1984. The number of Engineering and Medical Colleges during the same period has increased manifold. The out-turn of S&T personnel increased from 16,000 in 1950 to 1.39 lakhs in 1970 and 1.63 lakhs in 1979. Facultywise out-turn of graduates and post graduates during 1979, the latest year for which the data is available is given in Table 2.1

Table 2.1
OUT-TURN OF S&T PERSONNEL FROM
UNIVERSITIES DURING 1979

| Category | Out-turn |
|------------------------|----------|
| Science | 117151 |
| Engineering/Technology | 18742 |
| Agriculture | 7226 |
| Veterinary Science | 1089 |
| Medicine | 18354 |
| Total | 162562 |

As a natural corollary to the increase in the outturn, the stock of S&T personnel has steadily been increasing. Their number which was 1.9 lakhs in 1950 increased to 19.5 lakhs in 1980 thus registering a ten times growth during the period of 30 years. It is expected to touch a figure of 24.7 lakhs in 1985. The categories included in the above count are degree and diploma holders in Engineering, graduates and post graduates in Science/

agriculture and degree holders in Medicine. It may be pertinent to mention that the increase of S&T personnel has been much more than the corresponding increase of population during the same period as may be seen from table 2.2

Table 2.2
GROWTH FACTOR OF S&T PERSONNEL
VIS-A-VIS POPULATION DURING 1950-1980

| Category | Growth factor | | |
|---------------|---------------|---------|---------|
| | 1950-60 | 1960-70 | 1970-80 |
| Population | 1.20 | 1.25 | 1.23 |
| S&T Personnel | 2.39 | 2.61 | 1.52 |

Not all the S&T personnel are engaged in research & development. As on 1.4.82, 1.97 lakhs personnel were employed in these institutions. About 36% of them were directly engaged in research activities, about 31% were performing auxilliary scientific activities and the rest 33% were providing administrative and other non technical support. About 62% of the total R&D personnel were employed by the Central Government, about 19% each were engaged by the State Governments and the Private Sector. For each R&D personnel in the Central Government the number of auxilliary and administrative personnel were 1.13 and 1.08 respectively.

Out of 1.97 lakhs personnel employed in R&D institutions only about 12,237 were female. Their deployment pattern is given in Table 2.3

It may be seen from the above, that a little over one fourth of the R&D personnel are performing R&D activities while about half of them are providing administrative and other non technical support. More than 80% of them were employed by the Central Government and only about 8% were employed by the Private sector.

An attempt has been made to analyse the time series data on the deployment pattern of personnel employed in R&D. For this purpose, the analysis has been restricted to the following six scientific agencies: Department of

MANPOWER EMPLOYED IN R&D ESTABLISHMENTS & PATTERN OF R&D EMPLOYMENT, 1976 and 1982.

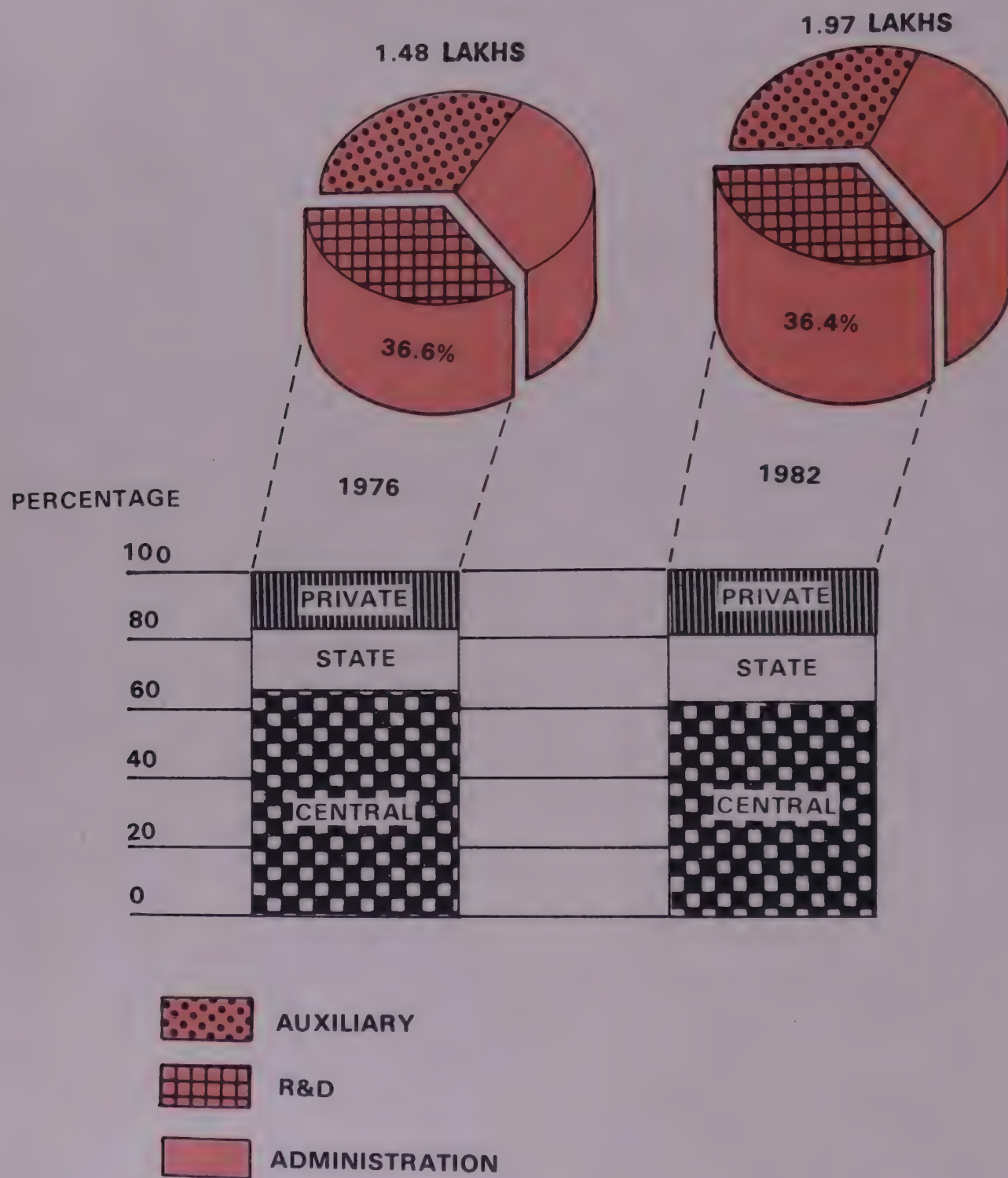


Table 2.3
NUMBER OF FEMALE PERSONNEL EMPLOYED
IN R&D ESTABLISHMENTS

| Name of the Sector | No. of personnel employed | | | |
|--------------------|---------------------------|-----------------|---------------------|----------------|
| | R&D | Auxill- iary | Admin- istrative | Total |
| Central Sector | 2457 (25) | 2707 (27) | 4784 (48) | 9948 (100) |
| State Sector | 417 (31) | 250 (18) | 696 (51) | 1363 (100) |
| Private Sector | 402 (43) | 202 (22) | 322 (35) | 926 (100) |
| Total | 3276 (27) | 3159 (26) | 5802 (47) | 12237 (100) |

(Note) The figures in brackets indicate percentages

Atomic Energy, CSIR, DRDO, ICAR, ICMR and Space. Various categories of personnel employed with them are given in table 2.4

It may be seen that the compound rate of growth of

various categories during the period 1973-74 to 1982-83 is as under:-

| | |
|--------------------------|----|
| R&D Personnel | 5% |
| Auxilliary Personnel | 9% |
| Administrative Personnel | 5% |
| Overall | 6% |

For each R&D personnel the number of auxilliary and administrative personnel deployed for the above years are given in table 2.5

It may be seen that there has not been any radical change in the deployment pattern of auxilliary and administrative personnel vis-a-vis R&D personnel.

To sum up there has been a substantial expansion of facilities for education of S&T personnel. Their outturn and stock has steadily been growing. As on 1.4.82, 1.97 lakh personnel were employed in R&D institutions in the country. A little over one third of them were directly engaged in R&D activities. About 62% of the total R&D personnel were employed by the Central Government. Out of the total personnel employed in R&D institutions little over 12,000 were known to be females. About 50% of them were performing administrative activities. Over the years, in most of the major scientific agencies for each R&D personnel the number of auxilliary and administrative personnel is 1.1.

Table 2.4
DEPLOYMENT PATTERN OF PERSONNEL EMPLOYED IN CERTAIN MAJOR SCIENTIFIC DEPARTMENTS

| Category | Years | | | | | |
|--------------------------|---------|-------|-------|-------|-------|-------|
| | 1973-74 | 74-75 | 76-77 | 78-79 | 80-81 | 82-83 |
| R&D Personnel | 19385 | 20872 | 21587 | 23943 | 26282 | 29275 |
| Auxilliary S&T Personnel | 17113 | 22332 | 26485 | 26297 | 31947 | 34978 |
| Admn Personnel | 21136 | 22526 | 31389 | 27379 | 30509 | 31928 |
| Total | 57634 | 65730 | 79761 | 77619 | 88738 | 96181 |

Table 2.5
NUMBER OF AUXILLIARY AND ADMINISTRATIVE PERSONNEL FOR EACH R&D PERSONNEL.

| Category | Years | | | | | |
|----------------|---------|-------|-------|-------|-------|-------|
| | 1973-74 | 74-75 | 76-77 | 78-79 | 80-81 | 82-83 |
| Auxilliary | 0.9 | 1.1 | 1.2 | 1.1 | 1.2 | 1.2 |
| Administrative | 1.1 | 1.1 | 1.5 | 1.1 | 1.2 | 1.1 |

CHAPTER III

R&D IN THE CENTRAL SECTOR

The expenditure on R&D and related S&T activities by the Central Sector has increased from Rs. 617 crores in 1980-81 to Rs. 964 crores in 1982-83. It is expected to be of the order of Rs. 1100 crores in 1983-84. This expenditure which was 76% of the total expenditure in 1980-81 increased to 78% in 1982-83. At current prices the yearly growth from 1980-81 is about 25% but at constant prices the growth for this period is 13%. As a percentage of GNP, the expenditure which was 0.5% in 1980-81 increased to 0.7% in 1982-83. One fifth of the expenditure was incurred for basic research, about two-third for applied research and experimental development and the rest for the other activities. Revenue expenditure accounted for about two thirds of the total expenditure. An attempt has been made to apportion R&D expenditure by various objectives laid down by UNESCO as a part of International Standardisation of Statistics on Science and Technology. Ideally this ought to be done on a project to project basis but due to operational problems it has not been possible to do so. On a rough and ready basis each institution has been assigned to a particular objective depending on its predominant activity. On this basis, the percentage allocation of resources for some of the objectives during 1982-83 was as in Table 3.1

Table 3.1
PERCENTAGE BREAK UP OF EXPENDITURE BY
VARIOUS OBJECTIVES

| Name of the objective | percentage allocation |
|--|-----------------------|
| Promotion of Industrial Development | 18 |
| Development of Agriculture | 17 |
| Forestry and Fishing | |
| Defence | 15 |
| Production, conservation and distribution of energy | 14 |
| Exploration and assesment of earth, seas, atmosphere | 10 |
| Other aims | 26 |
| Total | 100 |

All the S&T Institutions under the Central Government could broadly be demarcated in two categories. In the first category fall those organisations which have R&D or promotion of S&T as their predominant activity and in the second category fall those which undertake R&D occasionally in connection with their day to day problems. On this basis, the two types of institutions are named as "Major Scientific Agencies" and other S&T Ministries/Departments. The percentage allocation for the agencies is about three fourth and the rest is for the Ministries/Departments.

Amongst the Major Scientific Agencies the percentage allocation for the year 1982-83 is as in Table 3.2

Table 3.2
PERCENTAGE ALLOCATION OF RESOURCES
AMONGST MAJOR SCIENTIFIC AGENCIES

| Name of the Agency | percentage allocation |
|---|-----------------------|
| Indian Council of Agricultural Research | 18.8 |
| Defence Research and Development Organisation | 17.4 |
| Deptt. of Atomic Energy | 15.1 |
| Council of Scientific and Industrial Research | 14.4 |
| Deptt. of Space | 12.3 |
| Deptt. of Science & Technology | 8.7 |
| Deptt. of Ocean Development | 7.1 |
| Others | 6.2 |

A small amount of Central Government financed research and development is carried out by Cooperative Research Associations. There are 14 such Associations out of which three are of recent origin. These are financed jointly by the Private Industry and by the Government. The Government support is given in some proportion to the funds received from industry. These organisations undertake research of collective interest to

their members. Their R&D expenditure has increased from Rs. 8.28 crores in 1980-81 to 11.40 crores in 1982-83.

Table 3.3
PERCENTAGE ALLOCATION OF RESOURCES
AMONGST MINISTRIES

| Name of the Ministry | percentage allocation |
|--------------------------|-----------------------|
| Education (Universities) | 18.5 |
| Heavy Industry | 17.7 |
| Defence Production | 14.7 |
| Communication | 10.3 |
| Petroleum | 5.9 |
| Irrigation | 4.1 |
| Steel | 4.0 |
| Chemicals & Fertilizers | 3.9 |
| Others | 20.9 |
| Total | 100.0 |

The percentage allocation amongst the various Ministries for the year 1982-83 is as in Table 3.3

Out of 1.97 lakh personnel employed in R&D Institutions, 1.42 lakhs were employed by the Central Sector out of which about 44,000 were engaged in research, about 50,000 were performing auxilliary activities, and the rest were providing administrative support.

Out of 1.42 lakh personnel employed in the Central Sector a little less than 10,000 were known to be females. About 25% of these were engaged in R&D activities, 27% were performing auxilliary activities and the rest 48% were providing administrative and other non-technical support. About two thirds of the total personnel in the central sector were employed by the major scientific agencies.

The number of papers published or the seminars attended could also be regarded as a measure of productivity of R&D. This information for the Central Sector S&T Institutions for the three year ending 1982-83 is given in Table 3.4

R&D EXPENDITURE BY CENTRAL GOVERNMENT DURING 1982-83

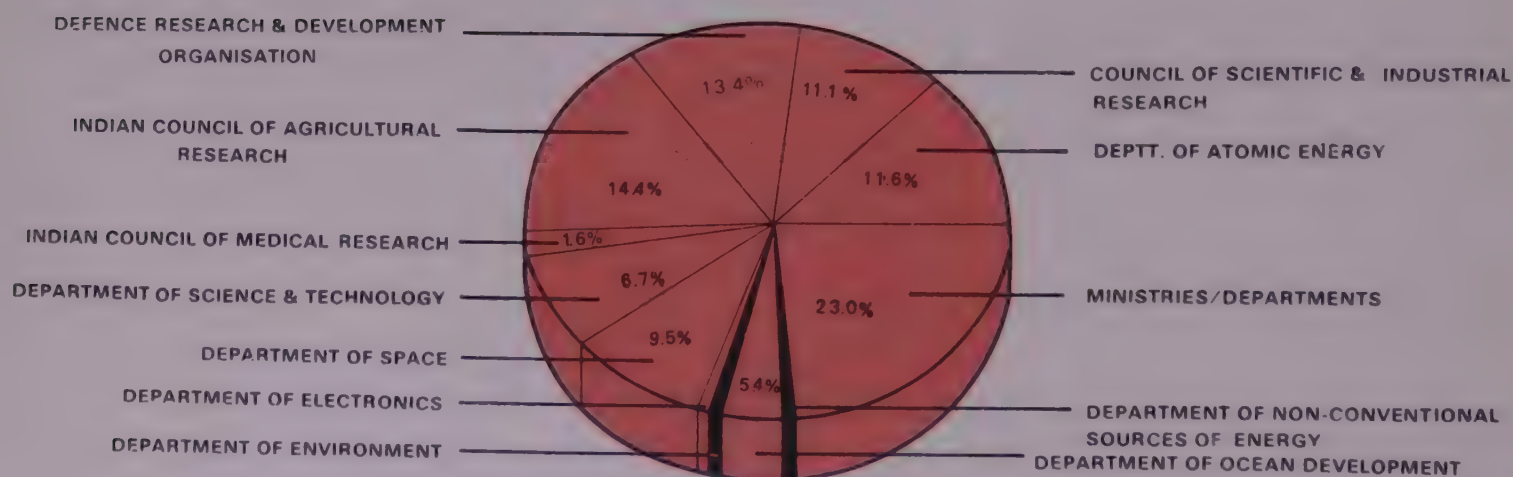


Table 3.4
NUMBER OF PAPERS PUBLISHED AND S&T
PERSONNEL DEPUTED FOR SEMINARS,
1980-81 TO 1982-83

| Category | 1980-81 | 81-82 | 82-83 |
|---|---------|-------|-------|
| Papers published | 5024 | 4836 | 4237 |
| Books published | 66 | 115 | 107 |
| Regular reports published | 894 | 941 | 794 |
| Adhoc reports published | 936 | 871 | 869 |
| Number of S&T Personnel deputed for national and International seminars | 2765 | 3284 | 2513 |

It may be seen from the above that about 5 to 6 thousand papers are published by the reporting R&D Institu-

tions in the central sector and about 3000 S&T personnel are deputed for national and international seminars.

To sum up the expenditure on R&D and related S&T activities by the central sector in 1982-83 was 964 crores. This constituted 78% of the total expenditure. The yearly growth at current prices from 1980-81 is about 25% but at constant prices the growth from 1981-82 to 1982-83 is 17%. R&D expenditure as a percentage of GNP in the central sector was 0.7% in 1982-83. About three fourth of the total R&D expenditure was incurred by the major scientific agencies. The Central Sector employs 1.42 lakhs person in R&D institutions out of which about 44,000 were engaged in research, about 50,000 were performing auxilliary activities and 48,000 were providing administrative support. About 5000 papers are brought out by these institutions on an average and about three thousand S&T personnel are deputed for national and international seminars.

CHAPTER IV

R&D IN THE STATE SECTOR

The State Governments supplement the efforts of the Central Government in the areas which are of prime importance to them namely agriculture, animal husbandry, fisheries, health etc. With the setting up of Agricultural Universities in most of the states almost all the work relating to agriculture research, education including extension is being carried out by Agricultural Universities. Accordingly, these universities account for bulk of the expenditure incurred by the state sector.

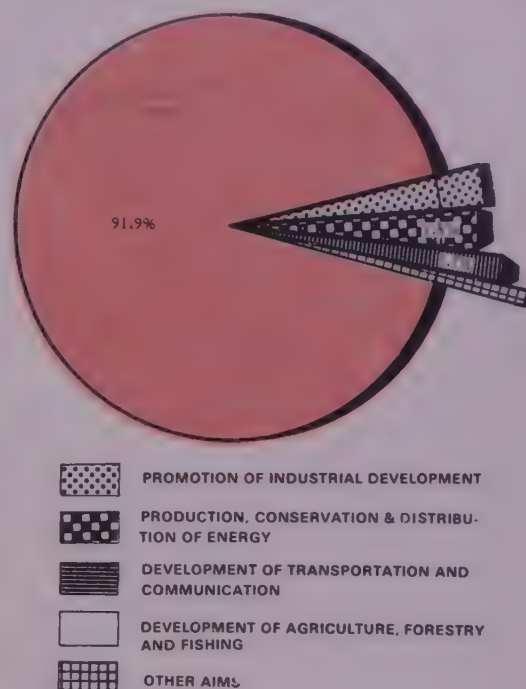
The total S&T expenditure by the State Sector has increased from Rs. 75.73 crores in 1980-81 to Rs. 112.62 crores in 1982-83, and is expected to be of the order of Rs. 162 crores in 1983-84. This constitutes 9% of the total national expenditure. The states account for 0.08% of S&T expenditure as % of GNP during 1982-83. About 70% of the expenditure is incurred for applied research and experimental developments, about 8% for basic research and the rest is for other activities. Revenue expenditure accounted for more than 80% of the expenditure.

The percentage distribution of expenditure by various states during 1982-83 is given in Table 4.1

Table 4.1
PERCENTAGE DISTRIBUTION OF EXPENDITURE
BY VARIOUS STATES

| Name of the State | percentage expenditure |
|-------------------|------------------------|
| Gujarat | 13.3 |
| Karnataka | 12.7 |
| Maharashtra | 10.0 |
| Madhya Pradesh | 9.0 |
| U.P. | 8.7 |
| Tamil Nadu | 6.5 |
| Punjab | 6.5 |
| Orissa | 5.6 |
| Bihar | 5.1 |
| Haryana | 4.5 |
| Others | 18.1 |
| Total | 100.0 |

PERCENTAGE DISTRIBUTION OF FINANCIAL
RESOURCES DEVOTED BY THE STATE SECTOR
DURING 1982-83 ON MAJOR OBJECTIVES

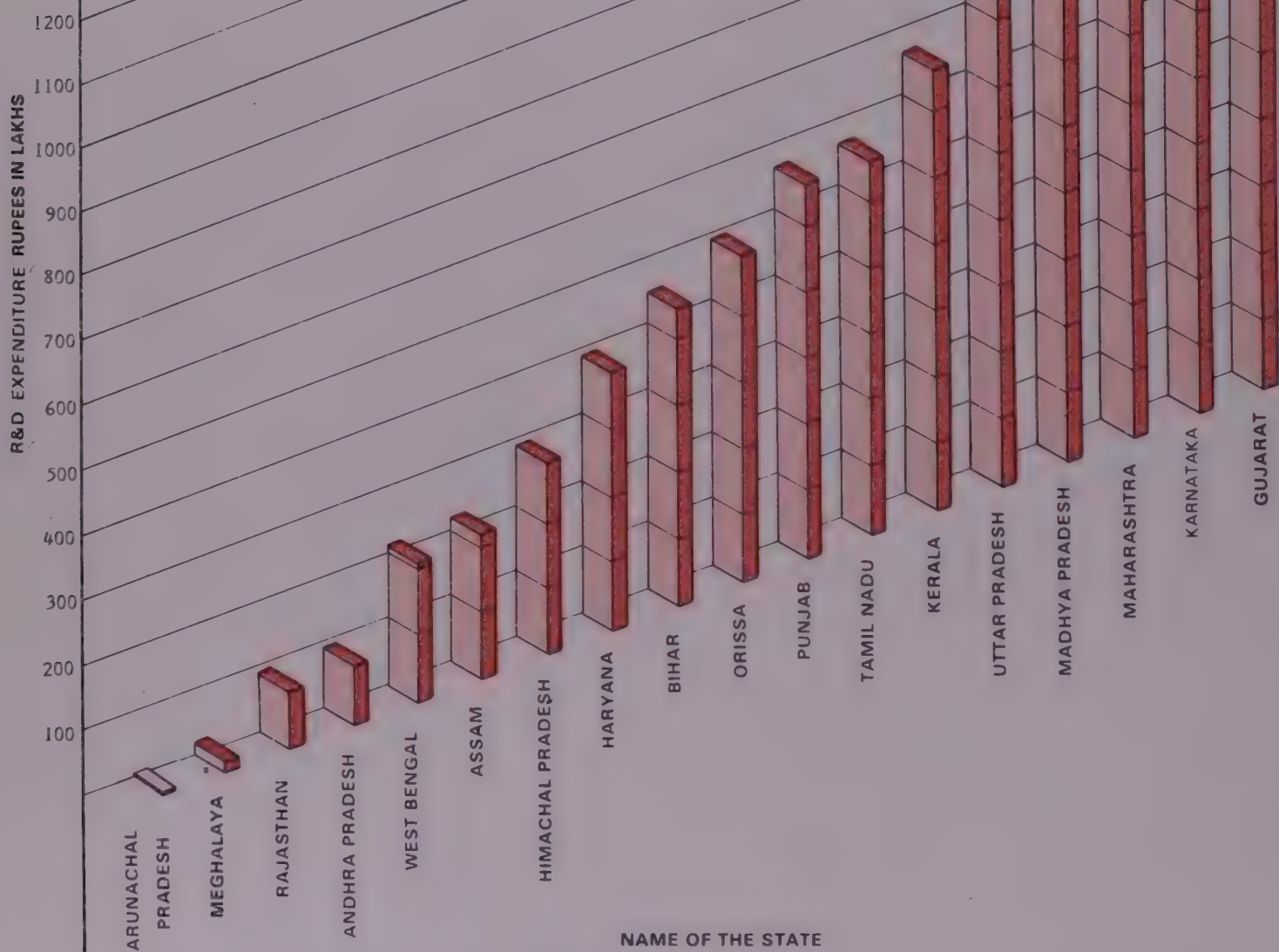


By objective the percentage of expenditure for 1982-83 is given in Table 4.2.

Table 4.2
PERCENTAGE DISTRIBUTION OF EXPENDITURE
BY VARIOUS OBJECTIVES

| Name of Objective | percentage expenditure |
|--|------------------------|
| Development of agriculture, forestry and fishing | 91.9 |
| Production, conservation distribution of energy | 2.8 |
| Promotion of industrial development | 2.6 |
| Development of transport and communication | 1.7 |
| Exploration and assessment of earth, seas and atmosphere | 0.5 |
| Others | 0.5 |

EXPENDITURE ON RESEARCH AND DEVELOPMENT BY STATE GOVERNMENTS DURING 1982-83.



It may be seen from the above that almost 92% of the total expenditure by the state sector is for the development of agriculture and allied areas.

By fields of Science, the expenditure by the State Sector during 1982-83 is given in Table 4.3.

Table 4.3
PERCENTAGE DISTRIBUTION OF EXPENDITURE
BY FIELDS OF SCIENCE

| Name of the field of Science | percentage expenditure |
|------------------------------|------------------------|
| Natural Sciences | 3 |
| Engineering & Technology | 7 |
| Medical Sciences | neg. |
| Agricultural Sciences | 90 |
| Total | 100 |

As could be expected the bulk of the expenditure is for agriculture.

Out of 1.97 lakhs personnel employed in R&D institutions about thirty thousand were employed by the state sector, out of which about thirteen thousand were engaged in research activities, a little over five thousand were performing auxilliary activities and the rest were providing administrative support. Thus for every R&D personnel there were 0.4 auxilliary personnel and 0.8 administrative personnel. The large proportion of administrative personnel is probably on account of the fact that quite substantial support is needed for extension,

demonstration and other related work in agriculture. Out of the total personnel employed by the State Sector only 5% were female majority of whom were providing administrative support.

Details regarding the number of papers published by the state sector are given in Table 4.4.

Table 4.4
NO. OF PAPERS PUBLISHED AND S&T
PERSONNEL DEPUTED FOR SEMINARS

| | |
|---|-----|
| Papers published | 583 |
| Books published | 19 |
| Regular reports published | 864 |
| Adhoc reports published | 73 |
| S&T personnel deputed for national/international seminars | 671 |

It would be pertinent to mention here that for quite a few of Agricultural Universities, the above information was not readily available. Therefore, the above data could only be used as an indicator of the order of magnitude.

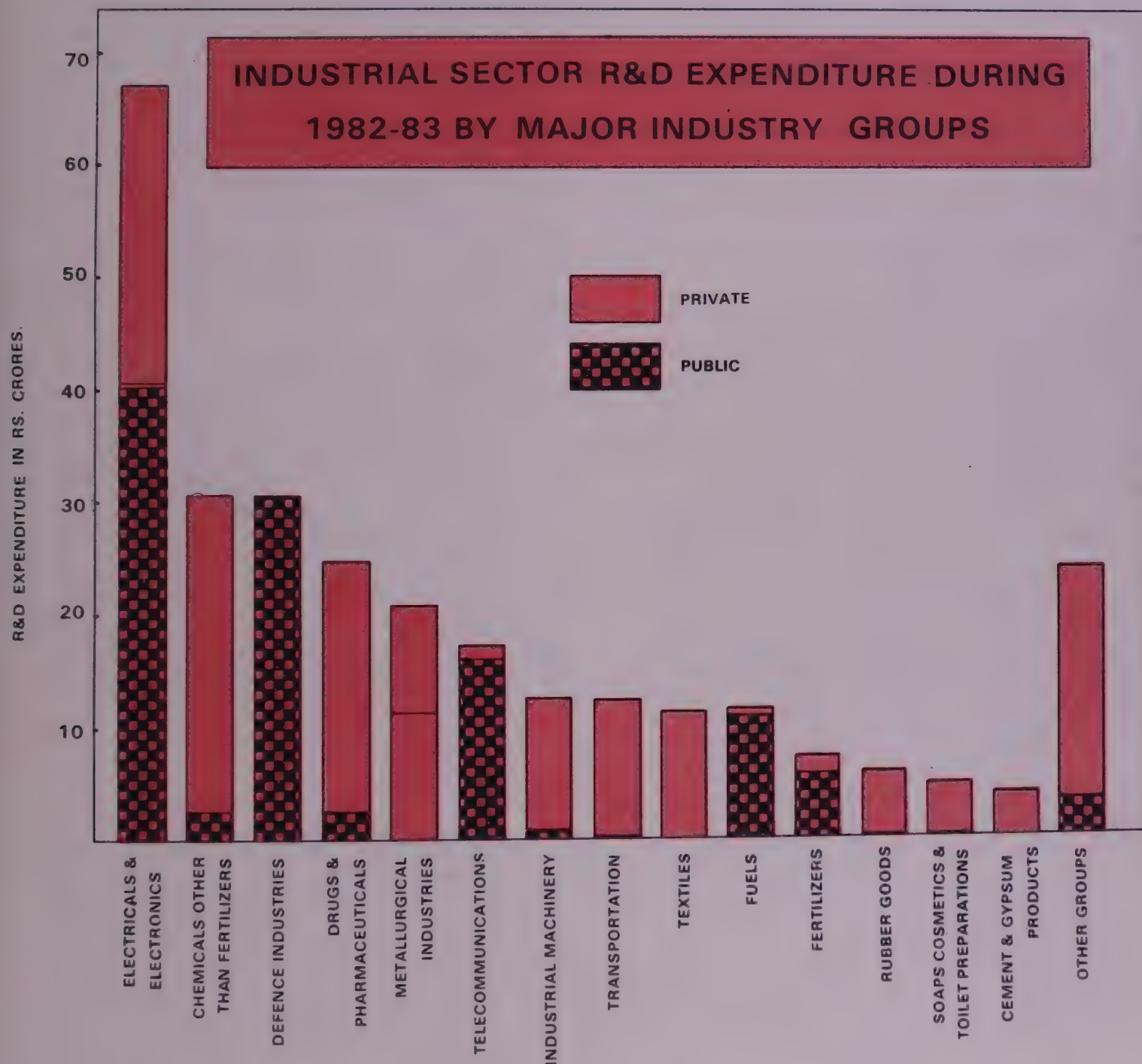
To sum up, the state sector accounts for 9% of the total national S&T expenditure. The expenditure by this sector during the year 1982-83 was a little over Rs. 110 crores. The States of Gujarat, Karnataka and Maharashtra accounted for more than 35% the total S&T expenditure in the state sector. About 15% of the total R&D personnel employed in the country were serving in the state sector. About 1500 papers, reports etc. were published and about 670 personnel were deputed for national and international seminars.

CHAPTER V

R&D IN THE INDUSTRIAL SECTOR

This section deals with the financial and human resources devoted to research & development activities by industrial sector enterprises. The Industrial sector comprises of Public Sector enterprises (both Central and

State) and private sector industries registered with the Department of Science & Technology as on 1st December, 1982. In all, questionnaires were sent to 750 Industrial R&D units. Out of this 600 private sector industries



and 68 public sector industries have sent the requisite data in the questionnaire specially designed for this purpose.

Investment by Industrial sector R&D units in Research & Development for the year 1982-83 attained a level of Rs. 285.61 crores at current prices, which works out to be about 23% of the total investment in R&D at National level. The total investment on R&D has increased from Rs. 207.06 crores in 1980-81 to Rs. 254.55 crores 1981-82 and to Rs. 285.61 crores in 1982-83, representing an increase of about 22.9% and 12.2% respectively. The total industrial sector R&D expenditure for the year 1982-83 worked out to be 0.19% of the Gross National Product at current prices.

During the year 1982-83, 56.5% of the total industrial sector R&D expenditure was incurred by the private sector industries and rest 43.5% was incurred by public sector industries. On the same basis, the share for 1981-82 for the private sector was 57.7% and the rest was by public sector and the share worked out to be 58.3% for private sector and 41.7% for public sector for the year 1980-81.

Table-5.1 gives R&D expenditure and number of units for Public sector, Private sector and Industrial sector as a whole for three years.

It is interesting to note from table-5.1 that 43.5% of the total industrial R&D expenditure was incurred by about 10% of the industries in the public sector and rest 56.5% was spent by the 90% of private sector R&D units during 1982-83. The reason could be that the public sector R&D units are invariably very large in size whereas private sector units are heterogenous in size and even include small scale industries spending little on R&D. The graph 5.1 indicates the growth of R&D expenditure in industrial, private and public sector.

It is known that industries are profit oriented and the investment on R&D by the industrial units is to a large extent conditioned by the likely financial benefits such as increase in sales, production and reduction in the cost of production etc. The expenditure on advertising and new plant & machinery also aims at increase in sales and production. Therefore, the information regarding R&D expenditure as percentage of sales turnover, expenditure on advertising and its percentage share in sales turnover and expenditure on new plant & machinery and its percentage share in turn over were collected to assess the relative importance given by the industries to R&D, advertising and purchase of new machinery. The R&D expenditure as percentage of sales turnover for the industrial sector works out to be 0.63%. For the public and private sectors the figures were 0.58% and 0.68% respectively for the year 1982-83. The advertising expenditure by the industrial sector as a whole constitutes 0.16% of the sales turnover. For the Public and Private sector the figures for the year 1982-83 are 0.03% and 0.28% respectively. The expenditure on new plant and machinery as percentage of sales turnover for industrial sector during 1982-83 was 1.77%. This percentage for public and private sector was 0.75% and 2.70% respectively.

The total R&D expenditure of the Industrial sector has been apportioned into 38 industrial groups on the basis of the products manufactured by them. Nine groups are given in the table 5.2 which accounts for the bulk of R&D expenditure incurred by public, private, and industrial sector during 1982-83.

It may be seen from the table 5.2 that 72% of the total industries fall under nine industrial groups which accounts for 80% of total R&D expenditure by industrial sector. 49% of the total industries which belongs to first four groups accounts for about 54% of the total R&D expenditure by industrial sector. In public sector about

Table 5.1

| Sector | No. of Industries | R&D Expenditure (Rs. Lakhs) | | |
|----------------------|-------------------|-----------------------------|----------|----------|
| | | 1980-81 | 1981-82 | 1982-83 |
| 1. Public Sector | 68 | 8636.50 | 10755.30 | 12423.20 |
| 2. Private Sector | 600 | 12069.10 | 14700.00 | 16138.00 |
| 3. Industrial Sector | 668 | 20705.60 | 25455.30 | 28561.20 |

GROWTH OF INDUSTRIAL SECTOR R&D EXPENDITURE

INDUSTRIAL
PRIVATE
PUBLIC

R&D EXPENDITURE RUPEES IN LAKHS

300

50

200

150

100

50

0

1974-75

1975-76

1976-77

1977-78

1978-79

1979-80

1980-81

1981-82

1982-83

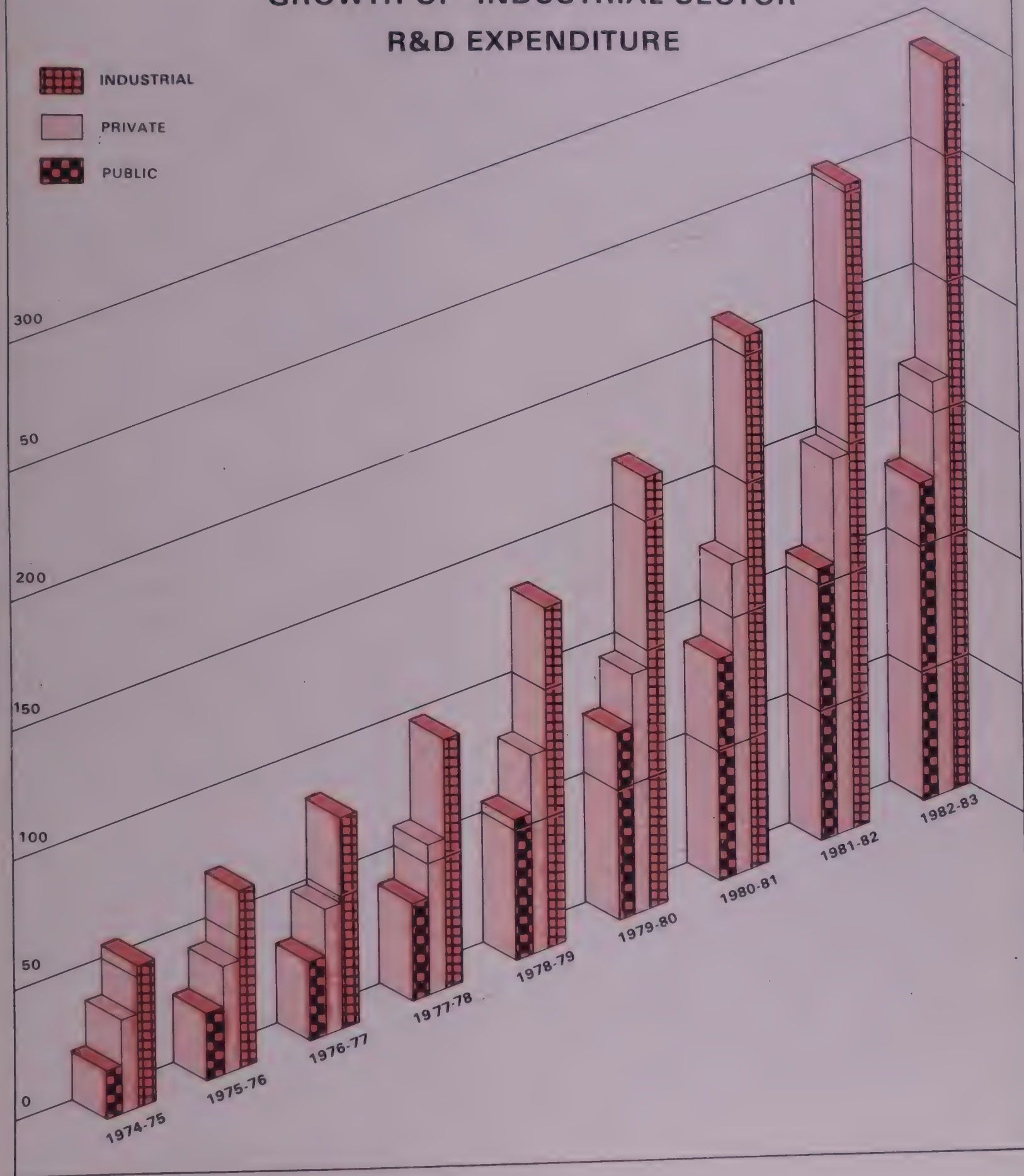


Table 5.2
R&D EXPENDITURE BY INDUSTRIAL SECTOR 1982-83 CLASSIFIED BY INDUSTRIAL GROUPS

| Sl. No. | Industry Group | Public Sector | | Private Sector | | Industrial Sector | |
|---------|----------------------------------|-------------------|-----------------------------|-------------------|-----------------------------|-------------------|-----------------------------|
| | | No. of Industries | R&D Expenditure (Rs. lakhs) | No. of Industries | R&D Expenditure (Rs. lakhs) | No. of Industries | R&D Expenditure (Rs. lakhs) |
| 1. | Electricals & Electronics | 12 | 4021.03 | 115 | 2680.56 | 127 | 6701.59 |
| 2. | Chemicals other than fertilizers | 5 | 250.79 | 133 | 2824.26 | 138 | 3075.05 |
| 3. | Defence Industries | 7 | 3068.67 | - | - | 7 | 3068.67 |
| 4. | Drugs & Pharmaceuticals | 4 | 253.63 | 54 | 2224.30 | 58 | 2477.93 |
| 5. | Metallurgical Industries | 9 | 1123.89 | 44 | 955.92 | 53 | 2079.81 |
| 6. | Telecommunications | 4 | 606.39 | 10 | 115.98 | 14 | 1722.37 |
| 7. | Industrial Machinery | 3 | 72.34 | 35 | 1189.97 | 38 | 1262.31 |
| 8. | Transportation | 1 | 4.00 | 22 | 1251.20 | 23 | 1255.20 |
| 9. | Textiles | - | - | 22 | 1126.58 | 22 | 1126.58 |
| 10. | Others | 23 | 2022.46 | 165 | 3769.23 | 188 | 5791.69 |
| Total | | 68 | 12423.20 | 600 | 16138.00 | 668 | 28561.20 |

34% of the total public sector industries which belongs to Electricals & Electronics, Defence and telecommunications accounts for about 62% of the total public sector R&D expenditure. About 22% of the total private sector industries which fall under Drugs & Pharmaceuticals, Industrial Machinery, Transportation and textiles accounts for about 36% of the total private sector R&D expenditure. It is also interesting to note that the variation in the size of R&D expenditure is quite high when a comparison is made between industry groups. Though the R&D expenditure is maximum for Electricals & Electronics the per unit expenditure for Defence industries groups is maximum i.e. (Rs. 438.38 lakh) for industrial sector as a whole as well as for public sector. The group Chemicals other than fertilizers is next to Electricals and Electronics for total R&D expenditure but per unit R&D expenditure of this groups when compared to telecommunications, transportation and textiles is quite low for industrial sector as a whole. It seems that by and large the capital intensive industry groups are spending more on R&D. The reason for low per unit R&D expenditure in the private sector for the industry groups Electricals & Electronics, Metallurgical industries & telecommunications may be attributed to some of the the small scale industries falling under these groups in the private sector.

Manpower employed is one of the major inputs for

R&D efforts. About 0.39 lakhs personnel were employed in the industrial sector R&D units which works out to be about 19.7% of the total personnel employed in R&D units in the country. This figure comprises of persons employed full time on R&D activities and also those employed on part time basis. Part time personnel are converted into full time equivalent personnel. Out of this about, 67% were employed in the inhouse R&D units of private sector and rest 33% were employed in the public sector. These personnel were either engaged in research or auxilliary scientific activities or providing administrative support. The breakup of these personnel into three categories is given below separately for public sector, private sector and industrial sector.

It may be seen from the table-5.3 that for every 100 R&D personnel employed in Industrial sector, 57 were engaged in research, 22 performed auxilliary activities and 21 provided administrative support. In public sector 65 out of 100 were engaged in research, 22 performed auxilliary activities and 13 provided administrative support and for private sector the employment in these three categories was 53, 22 and 25 respectively. Out of 22,207 S&T personnel engaged on R&D in the industrial sector, 63% were employed in private sector R&D units and 37% were employed in public sector R&D units.

Table 5.3

| Sl.No. | Category | Public Sector | Private Sector | Industrial Sector |
|--------|---|---------------|----------------|-------------------|
| 1. | No. of personnel engaged in R&D | 8204 | 14003 | 22207 |
| 2. | No. of personnel performing Auxilliary Activities | 2748 | 5735 | 8483 |
| 3. | No. of personnel rendering administrative support | 1710 | 6499 | 8209 |
| | Total | 12662 | 26237 | 38899 |

The breakup of S&T personnel engaged in R&D activities into male and female employees was available for 19550 personnel employed in Industrial sector. Out of this 13800 were employed in private sector and rest 5750 in public sector. It is seen that for every 1000 R&D employees in industrial sector about 31 were female employees.

To sum up industrial sector accounts for about 23% of the investment on science and technology in the country

during the year 1982-83. The share of private sector R&D units was 56.5% of the total industrial sector R&D expenditure. The per unit R&D expenditure was maximum for defence industries group. About 0.39 lakhs personnel were employed in the industrial sector out of which 0.22 lakhs were engaged in R&D activities. Out of 19550 R&D personnel for which breakup into male and female personnel were available about 3% were females engaged in R&D activities of industrial sector.

CHAPTER VI

HIGHER EDUCATION & SCIENTIFIC RESEARCH

Universities have traditionally been centres of higher education and research and the contribution made by them towards research can not be ignored. Therefore, any quantitative study of resources devoted to scientific research in the country would not be complete unless the contribution made by the University sector are properly reflected. Such an exercise is, however, beset with numerous difficulties as budget for research is included in the general budget of the Universities and it is not possible to apportion the expenditure between research and education without any empirical study. Whereas in some of the advanced countries, specific studies have been undertaken to throw light on this important aspect, it has not been possible to make any headway in this country on account of certain operational and conceptual problems. In the absence of specific data on inputs for research, an attempt has been made to provide some indirect evidence which could throw some light in this regard.

A number of steps have been taken by the University Grants Commission to accelerate the development of science capability in the Universities. A number of Centres of Advanced Studies in Indian Universities in the fields of Astronomy, Botany, Chemistry, Geology etc. have been established. These centres are intended to encourage the pursuit of excellence and to raise standards at the post graduate and research level, to function on all India basis and to provide conditions and facilities to attract scientists of outstanding ability and qualifications. The allocation made for these centres is given in table 6.1.

There are wide fluctuations over the years which are presumably due to large scale programme of equipment procurement for the laboratories.

In addition to the Centres of Advanced Study, the University Grants Commission funds research projects received from academic staff in Universities and colleges. Under this scheme two types of programmes for funding are being operated viz., Major Research Programmes in Science/Engineering and Technology and Minor Research Projects. The number of projects approved and

Table 6.1
**ALLOCATIONS MADE FOR CENTRES OF
ADVANCED STUDY IN SCIENCE**

| Year | Allocation (Rs. lakhs) |
|---------|------------------------|
| 1974-75 | 50.07 |
| 1975-76 | 36.65 |
| 1976-77 | 85.12 |
| 1977-78 | 17.69 |
| 1978-79 | 42.15 |
| 1979-80 | 28.36 |
| 1980-81 | 94.34 |
| 1981-82 | 38.45 |
| 1982-83 | 63.29 |

the outlays under the major research programmes are given in table 6.2.

Table 6.2
**OUTLAYS FOR MAJOR
RESEARCH PROGRAMME**

| Year | No. of Projects | Amount approved (Rs. in lakhs) |
|---------|-----------------|-----------------------------------|
| 1980-81 | 189 | 150.69 |
| 1981-82 | 256 | 207.94 |
| 1982-83 | 226 | 216.48 |

Apart from pursuit of scientific research, the University system has the primary responsibility of imparting higher education for supply of trained scientists needed for industry, teaching and research. Though the percentage enrolment in science over the total enrolment in the Universities had declined from 19.6 in 1974-75 to 19.11 in 1975-76 and 18.2 in 1976-77, the trend has since been reversed. The percentage enrolment increased from 18.4 in 1977-78 to 18.8 in 1978-79 and it reached the level of 1974-75 again in 1981-82. In 1982-83 the comparable figure was 19.7. The levelwise and facultywise enrolment in Science, Engineering etc. during 1981-82 is given in table 6.3.

Table 6.3
LEVELWISE ENROLMENT IN SCIENCE,
ENGINEERING/TECHNOLOGY, MEDICINE,
AGRICULTURE AND VETERINARY SCIENCES
DURING 1981-82.

| Faculty | Enrolment (000) | | | | Total |
|---------------------------------|-----------------|---------------|------|-------------------------------------|-------|
| | Graduate | Post graduate | Ph.d | Certifi- cate Diploma etc. | |
| Science | 510.3 | 56.5 | 11.0 | 1.0 | 578.8 |
| Enginee- ring/Techno logy | 119.5 | 5.9 | 0.9 | 3.8 | 130.1 |
| Medicine | 96.1 | 11.5 | 0.4 | 5.8 | 113.8 |
| Agricul- ture | 29.6 | 6.7 | 2.7 | 0.3 | 39.3 |
| Vety. Science | 6.8 | 1.0 | 0.4 | - | 8.2 |
| Total | 762.3 | 81.6 | 15.4 | 10.9 | 870.2 |

Note: Medicine includes, Allopathy, Aurveda, Dentistry, Homeophathy, Nursing, Pharmacy.

It may be noted that of the total enrolment more than 66% is for science subject and about 88% is for graduate degree courses.

Industrial Training Institutes, though providing tertiary education, nevertheless impart training to technicians needed for carrying out developmental activities. On an average about 60-65 thousand trainees pass out annually in the engineering trades under the Craftsman Training Programme as may be seen in Table 6.4

Table 6.4
NUMBER OF TRAINEES PASSED OUT FROM 1978
TO 1982 UNDER THE CRAFTSMAN TRAINING
PROGRAMME

| Year | No. of Trainees passed out |
|------|----------------------------|
| 1978 | 71,287 |
| 1979 | 64,019 |
| 1980 | 65,542 |
| 1981 | 57,984 |
| 1982 | 58,771 |

Consultancy work provides opportunity where new knowledge of fact and technique can be tried and used in the solution of total problems as they exist. In this way staff and student may develop expertise necessary to deal with the solution of scientific and technical problems under the constraints of industry and Government. The number of consultancy/sponsored research projects are also an indicator of the research efforts being undertaken by the Institutions concerned. Unfortunately no data is available for most of the Institutions of Higher Education. However, data in respect of consultancy, sponsored research projects undertaken by the five Indian Institutes of Technology is available and is given in Table 6.5.

Table 6.5
CONSULTANCY PROJECTS, SPONSORED
RESEARCH PROJECTS BY THE INDIAN
INSTITUTES OF TECHNOLOGY
DURING 1977-78

| Name of IIT | Number of Projects | |
|----------------|----------------------|-----------------------------|
| | Consultancy Projects | Sponsored Research projects |
| IIT, Delhi | 92 | 100 |
| IIT, Kanpur | 103 | 102 |
| IIT, Bombay | 272 | 45 |
| IIT, Madras | 197 | 108 |
| IIT, Kharagpur | 80 | 100 |
| | 744 | 455 |

To sum up, under the scheme of encouragement of "Pursuit of excellence", UGC has set up Centres of Advanced Study in various Universities and about Rs. 50 lakhs is being spent annually. 226 Major research projects were approved by UGC during the year 1982-83 for an outlay of Rs. 2 crores. The enrolment for science course which had declined during the period 1974-75 to 1976-77 is again showing an upward trend. Of the total enrolment in science, engineering medicine etc., about 66% was for basic science courses and about 87% for graduate degree courses. About 60 to 65 thousand trainees passed out every year under the Craftman Training Programme. The Indian Institutes of Technology were having 744 consultancy projects and about 455 sponsored research projects during the year 1977-78.

CHAPTER VII

APPLICATIONS OF R&D

Scientific research is an activity with multiple objectives. Some of the objectives may be higher productivity, reduction of costs, control of diseases etc. Though some advances have been made in quantifying some of the economic returns from investments in research, yet it is at present not possible to measure in quantitative terms many of the benefits. One of the straight forward measures used to gauge the output of R&D is the patent statistics over a number of years. The patent system provides protection to avoid duplication of technological advancement in the country. An analysis has been attempted in the ensuing paragraphs to highlight some of the salient features of the Indian patent system for the year 1982-83. Wherever necessary, comparison with the previous year data has been attempted.

The number of applications for patents received in 1982-83 was 3085 as against 2989 during the previous year. About 63% of the applications received in 1982-83 were in the name of foreigners and the rest were in the name of Indian Nationals. It might be interesting to know about the country of origin in respect of the applications received in the name of foreigners. Table 7.1 provides this information.

Table 7.1
NUMBER OF APPLICATIONS FOR PATENTS
RECEIVED FROM FOREIGN COUNTRIES.

| Name of the country | No. of applications received | |
|-----------------------------|------------------------------|-------------|
| | 1981-82 | 1982-83 |
| USA | 655 | 714 |
| United Kingdom | 233 | 228 |
| Federal Republic of Germany | 229 | 273 |
| France | 128 | 146 |
| Japan | 98 | 128 |
| Italy | 80 | 87 |
| Switzerland | 72 | 64 |
| Other countries | 382 | 310 |
| Total | 1877 | 1950 |

It may be seen from the table that USA roughly accounts for about 37% of the total applications received from foreign countries. USA together with UK, FRG, France, comprise 70% of the total applications received.

Within the country the total number of applications received during the year 1982-83 was about 1100. State-wise break up for some selected states is given in Table 7.2.

Table 7.2
APPLICATIONS FOR PATENTS FROM SELECTED
STATES IN INDIA.

| Name of States | No. of applications received. |
|----------------|-------------------------------|
| Maharashtra | 279 |
| Delhi | 270 |
| West Bengal | 132 |
| Gujarat | 52 |
| Andhra Pradesh | 40 |
| Kerala | 36 |
| Karnataka | 50 |
| Other States | 276 |
| Total | 1135 |

It may be seen from the above that Maharashtra and the Union Territory of Delhi account for almost 50% of the total number of applications filed in the country.

The number of patents sealed during the year 1982-83 was 1227 as against 1357 during the previous year. 67% of the patents sealed during 1982-83 were in the name of foreigners while the rest were in the name of Indians. The number of patents in force during the year 1982-83 was 18620 as against 17930 during the preceding year. 82% of such patents were in the name of foreigners and the rest 18% were in the name of Indian nationals.

The number of papers published or the seminars attended etc. can also be regarded as a measure of productivity of R&D. It is through this medium that the results of research are disseminated to the scientific community within the country and abroad. The relevant information for the three years ending 1982-83 in respect of the various research laboratories is given in table 7.3.

Table 7.3
NUMBER OF PAPERS PUBLISHED, S&T
PERSONNEL DEPUTED FOR SEMINARS,
1980-81 to 1982-83.

| Category | 1980-81 | 1981-82 | 1982-83 |
|--|---------|---------|---------|
| Papers published | 5521 | 5238 | 4820 |
| Books published | 75 | 126 | 126 |
| Regular reports published | 1620 | 1657 | 1658 |
| Adhoc reports published | 968 | 933 | 942 |
| S&T personnel deputed for various national & international seminars | 2945 | 3496 | 3184 |

It would be pertinent to mention here that the above data restricts information to the responding units. It does not take into account the activities of the various universities. Further in interpreting the above data it has to be borne in mind that only the number of papers published can not be taken as a yardstick for gauging the output but the quality of papers should also be taken into account. Generally the papers which are accepted by the international journals of repute could be regarded as being of higher standard than the other. However, no information is available for such finer analysis.

Innovation occupies an important place in the research and development process. It occurs at the development phase when a new process is introduced into

production or when a production line is set up to manufacture a new product. National Research Development Corporation (NRDC) has been assigned this responsibility. During the last 30 years it has received about 2200 technologies from the various R&D Institutions and has executed nearly 2800 agreements for transfer of technology. Out of the technologies licensed, nearly 450 have gone into commercial production with an estimated annual turnover of 120 crores. About 85% of the technologies generated and made available to the Corporation for transfer are in the small scale sector. Royalty and premia earned by it during 1982-83 is of the order of Rs. 1 crore.

To sum up the number of applications for patents received in 1982-83 was 3085 as against 2989 in the previous year. About 63% of the patent applications were received from foreign countries. For the applications made within the country about 50% were from Maharashtra and the Union Territory of Delhi. 1227 patents were sealed during 1982-83 and 67% thereof were in the name of foreigners. The number of patents in force during 1982-83 was 18620 out of which 82% were in the name of foreigners. More than 7500 papers were produced by the various Research institutions, 3200 scientists were deputed for various national and international seminars. National Research Development Corporation has executed nearly 2800 agreements during the last 30 years, about 450 technologies have gone into commercial production with an annual turnover of 120 crores. Royalty and premia earned by NRDC in 1982-83 was of the order of Rs. 1 crore.

CHAPTER VIII

INTERNATIONAL COMPARISON

In the preceeding chapters attention has been focussed on the total national S&T efforts and its components by various sectors, regions, fields etc. This helps the Policy Planners in deciding future strategy for resource allocation. At the same time, it is imperative to know the country's standing in S&T in comparison to other developing and developed countries. Such an analysis though *prima facie* appears to be simple and straight forward, entails a number of difficulties, both conceptual and operational. Though most of the developed countries have a well organised data collection mechanism, yet the concepts vary from country to country. For a large number of developing countries there is an additional paucity of data for the recent years. The office of Science Statistics of UNESCO has been making note-worthy contributions, towards international standardisation of statistics on S&T, but a lot need to be done before strictly comparable data could be obtained at the global level.

Notwithstanding these limitations, an attempt has been made in the ensuing paragraphs to throw some light on the various parameters. For the sake of international comparison, the sample selected for analysis consists of the following.

| Region | Developing Countries | Developed Countries |
|---------------|----------------------|---------------------|
| Asia | 4 | 1 |
| Europe | — | 12 |
| North America | — | 2 |
| South America | 2 | — |
| USSR | — | 1 |

In view of the difficulties enuciated earlier, it has not been possible to select a fairly representative sample from all the continents. One of the usual yardsticks used far the international comparison of S&T efforts is the percentage of GNP devoted to R&D. Table 8.1 shows this comparison.

It may be seen from the Table 8.1 that most of the developed countries spend between 2 to 3% of their GNP on R&D. Czechoslovakia, Hungary, and USSR spend more than 3% of their GNP on R&D.

It might be useful to examine whether the countries having high per capita GNP also spend more on R&D. For this purpose, per capita GNP has been broken down into five groups as per Table 8.2.

It may be noticed from the Table 8.2 that the developed countries in the last group have their per capita R&D expenditure more than 120\$. Most of the developing countries have their per capita R&D expenditure less than 10\$. For India this figure is paltry 1.5 dollar.

Stock of Scientists Engineers and Technicians constitutes another important input for research activities. To iron out the inter country differences due to varying population sizes, their number is usually expressed per thousand of population. Table 25 in the Annexure provides this data. It may be noticed that Sweden with 262 Scientist, Engineers & Technicians per thousand population has the highest number of such personnel. For USA this figure is only 13.78. For India the number of Scientists Engineers & Technicians per thousand population is only 2.63.

Not all Scientists, Engineers & Technicians are enganged in R&D Table 25 in the Annexure provides data in this regard also. It may be seen that their number per thousand population varies from 6.71 in case of Czenchoslovakia to 0.138 for Pakistan. For India this figure for 1982-83 is 0.19

To sum up, notwithstanding many limitations, international comparison throws some light on the inter-country differences on the resources deployed of R&D. Most of the developed countries devote 2to 3% of their GNP on R&D. For developing countries this figure is very marginal. For India this figure for 1982-83 is 0.85%. Per capita R&D expenditure for India is 1.52 \$ whereas this figure for most of the developed countries is 120\$ and above. Per thousand of population, India has 2.63 Scientists technologists and Engineers; those engaged in R&D out of them number 0.19 only.

Table 8.1
EXPENDITURE IN R&D AS PERCENTAGE OF GNP

| 0-0.5% | 0.5-1.0% | 1-2% | 2-3% | 3-4% |
|------------------------|------------------------|------------------------|-------------------------|-----------------------------|
| Greece 0.2 (79) | Argentina 0.6 (80) | Canada 1.3 (80) | Bulgaria 2.6 (81) | Czecho slavakia 3.8 (81) |
| Pakistan 0.2 (81) | Brazil 0.6(78) | Finland 1.2 (81) | Germany 2.4 (79) | Hungary 3.3 (81) |
| Phillipins 0.2 (80) | Italy 0.8 (80) | France 1.8 (79) | Japan 2.4 (81) | USSR 4.9 (81) |
| Portugal 0.3 (80) | Korea 0.7 (80) | Netherland 1.9 (80) | Poland 2.2 (81) | |
| | Yugoslavia 0.8 (80) | | Swden 2.0 (79) | |
| | India 0.85 (82) | | Switzerland 2.3 (79) | |
| | | | U.K. 2.2 (78) | |
| | | | U.S.A. 2.5. (81) | |

Note: The figure in brackets indicates the year to which the data pertains

Table 8.2
PER CAPITA R&D EXPENDITURE IN SOME SELECTED COUNTRIES
CATEGORISED INTO GROUPS BY PER CAPITA GNP IN US \$

| Per capita GNP less than \$500 | Per capita GNP between \$500-\$2000 | Per Capita GNP 2000\$-5000\$ | Per Capita GNP 5000\$-10000\$ | Per Capita GNP Above 10,000\$ |
|-----------------------------------|--|---------------------------------|----------------------------------|----------------------------------|
| Pakistan 0.49 (81) | Phillipines 1.65 (80) | Greece 7.55 (79) | Italy 59.43 (80) | Finland 120.17 (81) |
| India 1.52 (82) | Korea 11.13 (81) | Poland 8.28 (81) | U.K. 120.74 (78) | Canada 140.64 (81) |
| | | Brazil 10.09 (81) | | France 194.02 (79) |
| | | Yugoslavia 26 (80) | | Netherland 213.12 (80) |
| | | Argentina 27.36 (80) | | Sweden 242.26 (79) |
| | | Hungary 51.87 (81) | | Japan 231.1 (81) |
| | | | | FRG 297.87 (79) |
| | | | | USA 303.9 (81) |
| | | | | Switzerland 361.22 (79) |

(Note) figures in brackets indicate years

CHAPTER IX

SCIENCE & TECHNOLOGY PLAN

The Sixth Plan allocation for Science & Technology (both plan and non plan) amounts to Rs. 3406.14 crores as against 1380.64 crores during the earlier plan period. It might be useful to disaggregate this allocation by various sectors of economic activity such as agriculture, irrigation, industries etc. One peculiar difficulty encountered in this attempt is on account of the fact that some of the scientific departments such as Department of Science & Technology, Department of Atomic Energy, Department of Space etc. either do not have any economic activity or encompass more than one sphere and assigning them to anyone of such groups would be highly arbitrary. Such departments are grouped under the sector named "Residual". Table 9.1 gives the percentage break up into the various sectors.

The residual sector includes the following Departments Department of Atomic Energy, Environment, Ocean Development, Science & Technology, Space and National Test House. This category accounts for more than 50% of the total allocation.

The allocation made for science & technology could also be looked at from another angle. All the Scientific departments could be broadly divided into two categories (i) those which are predominantly research oriented like Council of Scientific and Industrial Research (CSIR), Indian council of Agricultural Research (ICAR), Indian

Council of Medical Research (ICMR) or those whose main function is the promotion of Science & Technology such as Department of Science & Technology, Environment, Electronics etc. (ii) those of the Ministries/Departments which undertake some amount of R&D to help in the performance of their day to day functions. For the sake of this comparison, those in the first category are called scientific agencies. Table 9.2 provides the information on allocation made for S&T for Scientific agencies and others.

It may be seen from Table 9.2 that about 70% of the total allocation is accounted for by the scientific agencies. The distribution of allocation amongst the scientific agencies is shown in Table 9.3

It may be seen that the Department of Atomic Energy and ICAR have almost equal share in the sixth plan allocation and these two together account for about 45% of the total allocation. It may be noted from Table 9.3 that Ocean Development accounts for only 1.7% of the funds allocated to the various scientific agencies as this Department has been created only recently. One of the agencies which has been receiving only about 2% of the total funds allocated to the various agencies pertains to the area of health research. It is only during the sixth five year plan that its allocation is about 3% as against 2% in the earlier plans.

Table 9.1
PERCENTAGE ALLOCATION OF PLAN & NON PLAN FOR
S&T BY SECTORS OF ECONOMIC ACTIVITIES

| Sl. No. | Sector | Percentage Allocation (Plan & Non Plan) | | | | |
|---------|---------------------------|---|-------|-------|-------|-------|
| | | 1980-85 | 80-81 | 81-82 | 82-83 | 83-84 |
| 1. | Agriculture & Irrigation | 20.7 | 22.2 | 19.9 | 18.7 | 18.9 |
| 2. | Industries | 11.4 | 11.2 | 10.6 | 9.5 | 10.1 |
| 3. | Energy | 5.6 | 3.5 | 4.6 | 5.1 | 6.0 |
| 4. | Transport & Communication | 4.3 | 4.0 | 4.1 | 4.3 | 4.7 |
| 5. | Social Services | 6.6 | 7.0 | 7.6 | 7.4 | 8.0 |
| 6. | Residual | 51.4 | 52.1 | 53.2 | 55.0 | 52.3 |
| Total | | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Table 9.2
PERCENTAGE ALLOCATION OF RESOURCES BETWEEN SCIENTIFIC AGENCIES AND OTHERS

| Sl. No. | Category | Percentage Allocation (Plan & Non Plan) | | | |
|---------|---------------------|---|-------|-------|-------|
| | | 1980-85 | 80-81 | 81-82 | 82-83 |
| 1. | Scientific Agencies | 68.5 | 70.1 | 69.6 | 70.2 |
| 2. | Others | 31.5 | 29.9 | 30.4 | 29.8 |
| Total | | 100.0 | 100.0 | 100.0 | 100.0 |

Table 9.3
PERCENTAGE ALLOCATION BETWEEN THE VARIOUS AGENCIES

| Sl. No. | Agency | Percentage Allocation (Plan & Non Plan) | | | |
|---------|-------------------|---|-------|-------|-------|
| | | 1980-85 | 80-81 | 81-82 | 82-83 |
| 1. | DAE | 22.8 | 21.7 | 21.6 | 19.4 |
| 2. | SPACE (S&T) | 16.8 | 17.6 | 18.5 | 16.6 |
| 3. | DST | 12.1 | 12.7 | 11.1 | 11.7 |
| 4. | ENVIRONMENT (S&T) | 2.4 | 1.3 | 1.8 | 1.8 |
| 5. | CSIR | 18.6 | 20.6 | 20.9 | 18.2 |
| 6. | OCEAN DEVELOPMENT | 1.7 | — | 2.1 | 10.1 |
| 7. | ICAR | 22.8 | 23.3 | 21.0 | 19.3 |
| 8. | ICMR | 2.8 | 2.8 | 3.0 | 2.9 |
| Total | | 100.0 | 100.0 | 100.0 | 100.0 |

As has already been brought out in the opening paragraph, the allocation for S&T (both plan and non plan) has increased from 1380.64 crores in the Fifth Plan to Rs. 3406.14 crores during the Sixth Plan thus representing a 2.5 times growth. But for some of the Ministries/Departments, other than the major scientific agencies, this growth is quite substantial as may be seen from table 9.4.

The above increase suitably reflects government's efforts to increase the tempo of S&T activities in the various Ministries/Departments.

Table 9.4
ALLOCATION FOR S&T DURING THE FIFTH AND SIXTH PLAN FOR CERTAIN SELECTED MINISTRIES/DEPARTMENTS

| Sl. No. | Name of Ministry/ Department | Fifth Plan allocation (Rs.crores) | Sixth Plan allocation (Rs.crores) | Ratio of (4) to (3) |
|---------|------------------------------|-----------------------------------|-----------------------------------|---------------------|
| (1) | (2) | (3) | (4) | (5) |
| 1. | Heavy Industry | 35.27 | 157.51 | 4.5 |
| 2. | Steel | 4.48 | 79.85 | 17.8 |
| 3. | Communications | 35.42 | 95.15 | 2.7 |
| 4. | IMD & Institutes | 63.96 | 118.00 | 1.8 |
| 5. | Education | 25.25 | 142.00 | 5.6 |

It might be useful to ascertain the distribution of allocation amongst the various Ministries/Departments Table 9.5 provides this data.

It may be seen that Institutions under the Ministry of Heavy Industry, Education, IMD & Institutes almost account for 40% of the total allocation.

To sum up the plan allocation for S&T has increased from Rs 1380.64 crores in the Fifth Plan to Rs. 3406.14 crores during the Sixth Plan. About 70% of the Sixth Plan allocation is for the major scientific agencies. About one fifth of the allocation is for the agriculture sector. Departments of Heavy Industry, Education, IMD & Institutes account for about 40% of the outlay for Ministries/Departments.

Table 9.5
PERCENTAGE ALLOCATION FOR CERTAIN
SELECTED MINISTRIES IN THE SIXTH PLAN

| Name of the Ministry/Department | Percentage allocation in the Sixth Plan |
|---------------------------------|---|
| Heavy Industry | 14.7 |
| Education | 13.3 |
| IMD & Institutes | 11.0 |
| Communications | 8.9 |
| Steel | 7.4 |
| Others | 44.7 |
| Total | 100.0 |

Table 1

TRENDS IN NATIONAL EXPENDITURE ON RESEARCH DEVELOPMENT AND RELATED SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES 1948-49 TO 1983-84

(Rupees crores)

| Year | 1948-49 | 1950-51 | 1955-56 | 1958-59 | 1965-66 | 1970-71 | 1975-76 | 1978-79 | 1979-80 | 1980-81 | 1981-82 | 1982-83 | 1983-84 Estimated |
|--|-------------|-------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------------|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
| (A) Expenditure on R&D | | | | | | | | | | | | | |
| Central Sector | 1.10 | 4.68 | 12.14 | 21.78 | 62.45 | 112.47 | 287.63 | 412.49 | 500.36 | 580.49 | 721.94 | 908.67 | 1044.97 |
| State Sector | n.a | n.a | n.a | 1.00 | 3.51 | 12.58 | 26.73 | 40.24 | 46.04 | 59.34 | 71.79 | 88.62 | 99.25 |
| Private Sector | n.a | n.a | n.a | 0.15 | 2.43 | 14.59 | 42.35 | 75.87 | 92.14 | 120.69 | 147.00 | 161.38 | 193.65 |
| Total (A) | 1.10 | 4.68 | 12.14 | 22.93 | 68.39 | 139.64 | 356.69 | 528.60 | 638.54 | 760.52 | 940.73 | 1158.67 | 1337.87 |
| (B) Expenditure on Related S&T Activities | | | | | | | | | | | | | |
| Central Sector | n.a | n.a | n.a | 5.88 | 16.67 | 33.73 | 36.09 | 19.32 | 23.07 | 36.73 | 43.21 | 54.89 | 63.12 |
| State Sector | n.a | n.a | n.a | n.a | n.a | na | 5.21 | 10.77 | 12.72 | 16.39 | 19.51 | 24.00 | 26.88 |
| Total (B) | n.a | n.a | n.a | 5.88 | 16.67 | 33.73 | 41.30 | 30.09 | 35.79 | 53.12 | 62.72 | 78.89 | 90.00 |
| Grand Total (A&B) | 1.10 | 4.68 | 12.14 | 28.81 | 85.06 | 173.37 | 397.99 | 558.69 | 674.33 | 813.64 | 1003.45 | 1237.56 | 1427.87 |

Source: (i) Data for 1948-49 and 1950-52, Science Policy and Organisation of Scientific Research in India Page 99

(ii) Data up to 1970-71 Report on Science & Technology, 1970-71 brought out by CoST. For subsequent years data compiled by DST.

Note: 1. Data for 1948-49 represents only expenditure of CSIR, ICAR, ICMR and DAE

2. A number of organisations are engaged in scientific and technological activities, such as weather forecasting, geophysical surveys, teaching consultancy etc. In addition they also undertake research for which in a number of cases no separate account is maintained. Wherever such details have not been provided, their expenditure on research has been estimated.

3. The number of units in the private sector varies from year to year. Data for 1965-66 related to 60 companies and that for 1970-71 to 109 companies. From 1975-76 data relates to the companies recognised by the DST under the Import Trade Control Policy, for 1975-76 the data relates to 300 companies, for 1978-79 and 1979-80 to 470 companies and for 1980-81 to 1982-83 to 600 companies.

4. Data for 1983-84 has been estimated by applying the following rates of growth:
Central Sector-15%, State Sector-12%, Private Sector-20%

Table 2
EXPENDITURE OF S&T IN RELATION TO GNP 1958-59 TO 1982-83

| Sl. No. | Particulars | 1958-59 | 1965-66 | 1970-71 | 1975-76 | 1978-79 | @1979-80 | @1980-81 | @1981-82 | @1982-83 |
|---------|--|---------|---------|---------|---------|---------|----------|----------|----------|----------|
| 1. | GNP at current prices (Rs. crores) | 12635 | 21866 | 36452 | 66115 | 86890 | 91731 | 113882 | 131740 | 145141 |
| 2. | Expenditure on R&D (Rs. crores) | 22.93 | 68.39 | 139.64 | 356.69 | 528.60 | 638.54 | 760.52 | 940.73 | 1158.67 |
| 3. | Expenditure on R&D as percentage of GNP | 0.18 | 0.31 | 0.38 | 0.53 | 0.67 | 0.61 | 0.67 | 0.71 | 0.80 |
| 4. | Expenditure on R&D and related S&T activities (Rs. crores) | 28.81 | 85.06 | 173.37 | 397.99 | 558.69 | 674.33 | 813.64 | 1003.45 | 1237.56 |
| 5. | Expenditure on R&D and related S&T activities as percentage of GNP | 0.23 | 0.39 | 0.47 | 0.60 | 0.64 | 0.71 | 0.71 | 0.76 | 0.85 |

@ Quick estimate

Source: (i) Data on R&D and S&T expenditures compiled by DST.

(ii) Data on GNP - Economic survey, 1983-84

Table 3
EXPENDITURE ON R&D AT CURRENT AND CONSTANT PRICES
1978-79 TO 1982-83

| Year | Expenditure on R&D (Rs. crores) | |
|---------|---------------------------------|-----------------|
| | Current prices | Constant prices |
| 1978-79 | 528.60 | 300.55 |
| 1979-80 | 638.54 | 314.78 |
| 1980-81 | 760.52 | 337.93 |
| 1981-82 | 940.73 | 380.08 |
| 1982-83 | 1158.67 | 432.58 |

NOTE: For working out R&D expenditure at constant prices, GNP price deflators have been used.

Source: Data compiled by DST

Table 4
R&D EXPENDITURE BY MAJOR SCIENTIFIC AGENCIES UNDER THE CENTRAL GOVERNMENT

| Sl. No. | Name | R&D Expenditure (Rs. lakhs) | | | | | | | |
|---------|---|-----------------------------|---------|----------|----------|----------|----------|----------|----------|
| | | 1958-59 | 1970-71 | 1975-76 | 1978-79 | 1979-80 | 1980-81 | 1981-82 | 1982-83 |
| 1. | Department of Atomic Energy | 775.88 | 2871.56 | 5394.00 | 6082.32 | 6781.46 | 7347.81 | 8826.06 | 10563.13 |
| 2. | Council of Scientific and Industrial Research | 509.94 | 2155.73 | 3711.00 | 5592.39 | 5918.99 | 6900.00 | 7877.08 | 10081.50 |
| 3. | Defence Research and Development Organisation | 150.00 | 1755.35 | 5217.00 | 6678.61 | 9662.91 | 7970.00 | 10483.36 | 12199.96 |
| 4. | Indian Council of Agricultural Research | 372.29 | 1837.00 | 3294.00 | 5603.56 | 7739.81 | 9744.67 | 11149.50 | 13121.50 |
| 5. | Indian Council of Medical Research | 50.50 | 217.63 | 332.00 | 533.54 | 598.50 | 900.11 | 1195.13 | 1423.15 |
| 6. | Department of Science & Technology | 22.13 | 84.18 | 525.01 | 2389.83 | 2603.56 | 4063.69 | 4608.01 | 6051.06 |
| 7. | Department of Space | - | - | 3666.80 | 4553.74 | 4421.13 | 5601.56 | 7503.44 | 8605.17 |
| 8. | Department of Electronics | - | - | 238.01 | 511.47 | 750.25 | 540.55 | 751.11 | 847.55 |
| 9. | Department of Environment | - | - | - | - | - | 373.99 | 546.88 | 905.77 |
| 10. | Department of Ocean Development | - | - | - | - | - | - | 788.43 | 4935.94 |
| 11. | Department of Non-Conventional Energy Sources | - | - | - | - | - | 400.44 | 989.82 | 1203.20 |
| TOTAL | | 1880.74 | 8921.45 | 22377.81 | 31945.46 | 38476.61 | 43842.82 | 54718.82 | 69937.23 |

Source: Data compiled by DST

Table 5
R&D EXPENDITURE BY CENTRAL MINISTRIES/DEPARTMENTS FROM
1980-81 TO 1982-83

| Name | R&D EXPENDITURE | | | (Rs. Lakhs) |
|------------------------------------|-----------------|-----------------|-----------------|-------------|
| | 1980-81 | 1981-82 | 1982-83 | |
| Agriculture | 199.25 | 221.01 | 277.07 | |
| Food | 53.79 | 77.32 | 76.05 | |
| Irrigation | 486.12 | 501.59 | 863.77 | |
| Commerce (Commerce) | 374.78 | 432.37 | 517.32 | |
| Commerce (Textiles) | 297.11 | 344.34 | 398.05 | |
| Chemical & Fertilizers | 661.66 | 690.34 | 806.48 | |
| Communications | 1683.50 | 1903.86 | 2156.66 | |
| Defence Production | 1874.07 | 2689.40 | 3068.67 | |
| Defence | 5.83 | 7.87 | 9.80 | |
| Education (including Universities) | 2265.00 | 3115.0b | 3864.00 | |
| Energy (Coal) | 48.09 | 130.60 | 80.46 | |
| Energy (Power) | 59.77 | 71.26 | 86.68 | |
| Health & Family Welfare | 187.54 | 218.86 | 277.01 | |
| Home Affairs | 75.86 | 83.55 | 99.29 | |
| Information & Broadcasting | 42.86 | 42.80 | 47.99 | |
| Industry (Heavy Industry) | 2485.99 | 3128.76 | 3702.10 | |
| Industry (Industrial Development) | 495.85 | 488.66 | 697.29 | |
| Petroleum | 976.60 | 1138.93 | 1236.94 | |
| Railways | 603.77 | 669.37 | 777.84 | |
| Shipping & Transport | 0.65 | 0.33 | 0.43 | |
| Steel | 593.39 | 698.70 | 842.93 | |
| Mines | 293.13 | 305.42 | 380.64 | |
| Supply | 34.90 | 50.31 | 71.98 | |
| Tourism & Civil Aviation | 406.56 | 465.03 | 590.05 | |
| TOTAL | 14206.07 | 17475.68 | 20929.50 | |

SOURCE: Data Compiled by Department of Science & Technology

Table 6
EXPENDITURE ON RESEARCH AND DEVELOPMENT BY STATE GOVERNMENTS
FROM 1980-81 TO 1982-83.

(Rs. lakhs)

| Sl. No. | Name of the State | R&D expenditure | | |
|---------|-------------------|-----------------|---------|---------|
| | | 1980-81 | 1981-82 | 1982-83 |
| 1. | Andhra Pradesh | 100.96 | 91.04 | 98.55 |
| 2. | Arunachal Pradesh | 0.12 | 0.14 | 0.14 |
| 3. | Assam | 142.93 | 181.49 | 221.51 |
| 4. | Bihar | 316.14 | 379.16 | 455.15 |
| 5. | Gujarat | 811.24 | 1022.00 | 1181.97 |
| 6. | Haryana | 276.00 | 329.69 | 395.40 |
| 7. | Himachal Pradesh | 205.80 | 246.39 | 295.18 |
| 8. | Karnataka | 743.43 | 854.28 | 1122.34 |
| 9. | Kerala | 375.04 | 516.16 | 671.66 |
| 10. | Madhya Pradesh | 456.37 | 545.81 | 795.31 |
| 11. | Maharashtra | 616.75 | 739.00 | 889.95 |
| 12. | Meghalaya | 10.49 | 8.65 | 7.22 |
| 13. | Orissa | 341.77 | 410.25 | 492.42 |
| 14. | Punjab | 384.77 | 473.36 | 574.19 |
| 15. | Rajasthan | 59.83 | 71.29 | 93.07 |
| 16. | Tamil Nadu | 393.17 | 465.98 | 575.97 |
| 17. | Uttar Pradesh | 545.67 | 631.06 | 774.05 |
| 18. | West Bengal | 153.31 | 183.05 | 218.81 |
| TOTAL | | 5933.79 | 7148.80 | 8862.89 |

SOURCE: Data Compiled by DST

Table 7
R&D EXPENDITURE BY COOPERATIVE RESEARCH ASSOCIATIONS FROM
1980-81 TO 1982-83

(Rs. Lakhs)

| Sl. No. | Name | R&D Expenditure | | |
|---------|---|-----------------|---------|---------|
| | | 1980-81 | 1981-82 | 1982-83 |
| 1. | Ahmedabad Textile Industry's Research Association | 99.85 | 109.23 | 113.35 |
| 2. | Silk & Art Silk Mills Research Association | 70.94 | 66.02 | 90.50 |
| 3. | South India Textile Industry's Research Association | 54.18 | 62.97 | 56.12 |
| 4. | Bombay Textile Research Association | 55.70 | 72.32 | 81.00 |
| 5. | Indian Plywood Industry's Research Association | 19.43 | 20.81 | 26.32 |
| 6. | Tea Research Association | 164.27 | 160.87 | 194.57 |
| 7. | Indian Jute Industry's Research Association | 121.00 | 145.20 | 174.24 |
| 8. | Wool Research Association | 4.92 | 5.91 | 12.00 |
| 9. | Cement Research Institute | 180.02 | 216.02 | 259.21 |
| 10. | Indian Rubber Manufacturers Research Association | 2.65 | 3.42 | 10.52 |
| 11. | Automotive Research Association of India | 24.19 | 34.41 | 72.28 |
| 12. | Electronics Research and Development Association | 20.51 | 24.60 | 29.51 |
| 13. | Man Made Textile Research Association | 10.34 | 16.31 | 20.44 |
| Total | | 828.00 | 938.09 | 1140.06 |

Source: Data compiled by Department of Science & Technology.

Table 8
R&D EXPENDITURE BY PUBLIC SECTOR UNDERTAKINGS, 1982-83

| S.No. | Name of Ministry Department/State Government | Name of Undertaking | R&D Expenditure (Rs. Lakhs) | R&D Expenditure as percent of Sales turnover |
|-------|--|--|------------------------------------|--|
| 1. | Atomic Energy | Uranium Corporation of India Ltd. | 8.56 | 0.87 |
| | | Indian Rare Earths Ltd. | 7.77 | 1.14 |
| 2. | Chemicals & Fertilisers | Fertiliser Planning & Development India Limited. | 438.81 | 24.77 |
| | | Fertiliser & Chemicals Travancore Ltd. | 20.15 | 0.11 |
| | | Hindustan Insecticides Limited. | 21.00 | 0.51 |
| | | Hindustan Organic Chemicals Ltd. | 36.18 | 0.82 |
| | | Hindustan Antibiotics Limited | 120.36 | 3.31 |
| | | Indian Drugs & Pharmaceuticals Limited. | 119.49 | 1.12 |
| | | Madras Fertilizers Limited. | 12.03 | 0.06 |
| | | Rashtriya Chemicals and Fertilizers Ltd. | 27.51 | 0.08 |
| | | Smith Stanistreet Pharmaceuticals Ltd. | 10.95 | 1.44 |
| 3. | Communication | Hindustan Teleprinters Limited. | 84.24 | 8.35 |
| | | Indian Telephone Industries Ltd. | 1407.53 | 6.80 |
| 4. | Defence Production | Bharat Dynamics Ltd. | 16.05 | 4.49 |
| | | Bharat Earth Movers Limited. | 218.70 | 0.65 |
| | | Bharat Electronics Limited. | 1057.00 | 7.42 |
| | | Garden Reach Shipbuilders Limited. | 66.83 | 1.30 |
| | | Hindustan Aeronautics Limited. | 1703.61 | 7.11 |
| | | Mazagon Docks Limited | 0.48 | 0.004 |
| | | Praga Tools Limited. | 6.00 | 0.62 |
| 5. | Electronics | Computer Maintenance Corporation | 169.52 | 14.72 |
| | | Electronics Trade & Technology Development Corporation Ltd. | 20.03 | 0.77 |
| 6. | Energy (Coal) | Bharat Coking Coal Ltd. | 54.83 | 0.20 |
| | | Neyveli Lignite Corporation Ltd. | 24.38 | 0.16 |
| 7. | Health & Family Welfare | Hindustan Latex Ltd. | 5.68 | 2.05 |
| 8. | Heavy Industries | Bharat Pumps & Compressors Limited. | 48.40 | 1.84 |
| | | Bharat Heavy Electricals (Corporate) | 2215.84 | 2.43 |
| | | Hindustan Machine Tools Limited. | 293.78 | 0.97 |
| | | Heavy Engineering Corporation | 68.49 | 0.63 |
| | | Mining & Allied Machinery Corporation Ltd. | 1.00 | 0.01 |
| | | Richardson & Cruddas | 1.91 | 0.06 |
| | | Scooters India Ltd. | 4.00 | 0.13 |
| | | Triveni Structurals Ltd. | 2.85 | 0.21 |
| | | Tungbhadra Steel Products Ltd. | 1.60 | 0.02 |
| | | Bharat Heavy Electricals Ltd. Trichy | 335.52 | 0.91 |

| | | | | |
|-----|------------------------|---|--------|--------|
| 9. | Industrial Development | Hindustan Photo Films Mfg. Company Ltd. | 120.00 | 1.41 |
| | | Hindustan Salts Ltd. | 1.67 | 0.32 |
| | | Instrumentation Ltd. | 74.95 | 1.16 |
| | | National Instruments Ltd. | 11.22 | 2.22 |
| | | The National Newsprint & Paper Mills Ltd. | 6.90 | 0.22 |
| | | Tannery & Footwear Corporation | 1.15 | 0.27 |
| 10. | Petroleum | Engineers India Ltd. | 53.28 | 1.52 |
| | | Indian Oil Corpn. | 348.35 | 0.03 |
| | | Indian Petrochemicals Limited | 132.00 | 0.29 |
| | | Lubrizol India Ltd. | 59.94 | 1.08 |
| | | Oil & Natural Gas Commission | 631.81 | 0.95 |
| | | Oil India Ltd. | 11.56 | 0.03 |
| 11 | Science & Technology | Central Electronics Limited | 259.39 | 118.44 |
| 12 | Steel | Bharat Aluminium Company Limited. | 43.00 | 0.40 |
| | | Bokaro Steel Ltd. | 51.80 | 0.10 |
| | | Steel Authority of India Ltd. (R&D Centre) | 720.00 | 0.22 |
| | | Steel Authority of India Ltd. Rourkela | 66.53 | 0.13 |
| | | Visvesvaraya Iron & Steel Limited. | 4.60 | 0.04 |
| | | Bharat Gold Mines Ltd. | 26.20 | 1.18 |
| 13. | Mines | Hindustan Zinc Ltd. | 122.16 | 1.16 |
| | | Hindustan Copper Ltd. | 88.00 | 1.20 |
| | | Mineral Exploration Corporation Ltd. | 28.18 | 25.38 |
| | | Gujarat State Fertilizers Company Ltd. | 80.00 | 0.43 |
| 14. | Gujarat | Gujarat Communication & Electronics Ltd. | 100.13 | 11.21 |
| | | Karnataka Soaps & Detergents Ltd. | 5.00 | 0.17 |
| 15. | Karnataka | NGEF Ltd. | 24.25 | 0.34 |
| | | Kerala State Electronics Development Corpn. | 177.00 | 5.90 |
| 16. | Kerala | Kerala State Drugs & Pharmaceuticals Ltd. | 2.83 | 0.85 |
| | | Maharashtra Electronics Corporation Ltd. | 6.95 | 1.39 |
| 17. | Maharashtra | Maharashtra Electronics Corporation Ltd. | 6.95 | 1.39 |
| 18. | Punjab | Punjab Wireless Systems Limited. | 14.49 | 2.82 |
| | | Semiconductor Complex Limited. | 6.39 | 5.15 |
| | | Punjab Recorders Ltd. | 2.30 | 9.20 |
| 19. | West Bengal | West Bengal Electronics Corporation | 10.06 | 8.31 |

Source: Data Compiled by DST

Table 9
R&D EXPENDITURE BY INDUSTRY GROUP FOR PRIVATE SECTOR INDUSTRIES

(Rs. Lakhs)

| Sl No. | Industry Group | No. of Units | Total R&D Expenditure | | | R&D Expenditure As % of Sales Turnover | | |
|--------|---|--------------|-----------------------|----------|----------|--|---------|---------|
| | | | 1980-81 | 1981-82 | 1982-83 | 1980-81 | 1981-82 | 1982-83 |
| 1. | Metallurgical Industries | 44 | 658.03 | 973.80 | 955.92 | 0.44 | 0.53 | 0.47 |
| 2. | Fuels | 5 | 59.08 | 58.36 | 104.80 | 0.21 | 0.11 | 0.19 |
| 3. | Boilers & Steam Generating Plants | 2 | 14.82 | 14.81 | 20.54 | 0.46 | 0.34 | 0.41 |
| 4. | Prime Movers (other than Electrical Generators) | 5 | 322.03 | 236.83 | 220.86 | 1.69 | 1.16 | 1.00 |
| 5. | Electronic and Electrical Equipment | 115 | 1960.00 | 2280.69 | 2680.56 | 0.84 | 0.83 | 0.72 |
| 6. | Telecommunications | 10 | 64.20 | 79.21 | 115.98 | 1.62 | 1.33 | 2.62 |
| 7. | Transportation | 22 | 1185.18 | 1492.39 | 1251.20 | 1.17 | 1.17 | 0.87 |
| 8. | Industrial Machinery | 35 | 745.28 | 993.46 | 1189.97 | 1.03 | 1.19 | 1.16 |
| 9. | Machine Tools | 6 | 64.40 | 66.38 | 43.63 | 4.85 | 4.47 | 2.44 |
| 10. | Agricultural Machinery | 5 | 311.33 | 456.92 | 301.33 | 0.68 | 0.71 | 0.48 |
| 11. | Earth Moving Machinery | 1 | 7.12 | 12.94 | 9.76 | 1.41 | 2.22 | 1.53 |
| 12. | Misc. Mech. Engineering Industries | 5 | 102.44 | 41.56 | 48.18 | 1.87 | 0.75 | 0.60 |
| 13. | Commercial, Office, Household Equipment | 7 | 71.43 | 130.48 | 90.22 | 0.51 | 0.73 | 0.48 |
| 14. | Medical & Surgical Appliances | 1 | 9.72 | 10.69 | 11.75 | 1.11 | 1.11 | 1.11 |
| 15. | Industrial Instruments | 19 | 92.81 | 73.71 | 109.77 | 1.22 | 0.81 | 1.03 |
| 16. | Scientific Instruments | 6 | 15.12 | 18.95 | 15.84 | 4.84 | 5.01 | 4.21 |
| 17. | Math, Surveying & Drawing Instruments | 2 | 6.26 | 28.96 | 29.00 | 1.81 | 6.57 | 4.92 |
| 18. | Fertilizers | 4 | 110.38 | 180.50 | 149.84 | 0.45 | 0.58 | 0.43 |
| 19. | Chemicals (other than Fertilizers) | 133 | 2058.60 | 2817.10 | 2824.26 | 0.87 | 0.99 | 1.00 |
| 20. | Photographic Raw Film & Paper | 1 | 11.05 | 6.13 | 14.00 | 1.03 | 0.61 | 1.54 |
| 21. | Dyestuffs | 9 | 259.85 | 283.48 | 262.46 | 1.07 | 1.10 | 1.00 |
| 22. | Drugs & Pharmaceuticals | 54 | 1742.00 | 1793.40 | 2224.30 | 2.05 | 1.72 | 2.01 |
| 23. | Textiles (Dyed, Printed Processed) | 22 | 526.95 | 812.16 | 1126.58 | 0.35 | 0.45 | 0.55 |
| 24. | Papers & Pulp (Including Paper Products) | 13 | 205.87 | 177.78 | 161.63 | 0.59 | 0.45 | 0.42 |
| 25. | Sugar | 8 | 62.93 | 48.32 | 119.74 | 0.42 | 0.28 | 0.63 |
| 26. | Fermentation industries | 2 | 2.35 | 4.18 | 4.55 | 0.05 | 0.09 | 0.09 |
| 27. | Food Processing Industries | 13 | 110.23 | 114.33 | 126.81 | 0.31 | 0.28 | 0.28 |
| 28. | Vegetable Oils & Vanaspati | 3 | 4.07 | 13.42 | 9.92 | 0.05 | 0.16 | 0.13 |
| 29. | Soaps, Cosmetics, Toilet Preparations | 6 | 428.61 | 450.81 | 482.59 | 0.51 | 0.44 | 0.16 |
| 30. | Rubber Goods | 7 | 274.02 | 379.39 | 603.50 | 0.42 | 0.46 | 0.66 |
| 31. | Leather, leather Goods & Pickers | | | | | | | |
| 32. | Glue & Gelatin | | | | | | | |
| 33. | Glass | 4 | 64.24 | 43.78 | 22.09 | 1.79 | 1.11 | 0.43 |
| 34. | Ceramics | 10 | 157.90 | 157.27 | 269.22 | 1.32 | 1.18 | 1.68 |
| 35. | Cement & Gypsum | 3 | 264.31 | 322.20 | 382.87 | 0.76 | 0.68 | 0.61 |
| 36. | Timber Products | 2 | 16.06 | 12.38 | 18.56 | 0.54 | 0.37 | 0.58 |
| 37. | Defence Industries | | | | | | | |
| 38. | Miscellaneous Industries | 16 | 79.60 | 113.26 | 135.76 | 0.13 | 0.15 | 0.14 |
| Total | | 600 | 12069.10 | 14700.00 | 16138.00 | 0.77 | 0.76 | 0.68 |

Source: Data compiled by DST

Table 10
R&D EXPENDITURE BY INDUSTRY GROUP FOR PUBLIC SECTOR INDUSTRIES

(Rs. in Lakhs)

| Sl No. | Industry Group | No. of Units | Total R&D Expenditure | | | R&D Expenditure As % of Sales Turnover | | |
|-----------|--|-----------------|--------------------------|----------|----------|--|---------|---------|
| | | | 1980-81 | 1981-82 | 1982-83 | 1980-81 | 1981-82 | 1982-83 |
| 1. | Metallurgical Industries | 9 | 825.23 | 931.52 | 1123.89 | 0.25 | 0.24 | 0.25 |
| 2. | Fuels | 5 | 839.36 | 945.87 | 1070.93 | 0.13 | 0.10 | 0.09 |
| 3. | Boilers & Steam Generating Plants | | | | | | | |
| 4. | Prime Movers (other than Electrical Generators) | | | | | | | |
| 5. | Electronic and Electrical Equipment | 12 | 2634.96 | 3391.28 | 4021.03 | 2.00 | 2.05 | 2.08 |
| 6. | Telecommunications | 4 | 1280.45 | 1431.27 | 1606.39 | 8.40 | 7.57 | 6.96 |
| 7. | Transportation | 1 | 5.20 | 3.49 | 4.00 | 0.18 | 0.12 | 0.13 |
| 8. | Industrial Machinery | 3 | 49.71 | 59.64 | 72.34 | 0.43 | 0.42 | 0.42 |
| 9. | Machine Tools | | | | | | | |
| 10. | Agricultural Machinery | | | | | | | |
| 11. | Earth Moving Machinery | | | | | | | |
| 12. | Misc. Mech. Engineering Industries | 2 | 44.32 | 61.14 | 50.31 | 1.11 | 1.34 | 0.92 |
| 13. | Commercial, Office, Household Equipment | 1 | 0.99 | 1.05 | 1.15 | 0.23 | 0.25 | 0.28 |
| 14. | Medical & Surgical Appliances | | | | | | | |
| 15. | Industrial Instruments | 2 | 103.75 | 91.52 | 86.17 | 2.33 | 1.62 | 1.25 |
| 16. | Scientific Instruments | | | | | | | |
| 17. | Math, Surveying & Drawing Instruments | | | | | | | |
| 18. | Fertilizers | 5 | 456.33 | 567.04 | 578.50 | 0.71 | 0.71 | 0.64 |
| 19. | Chemicals (other than Fertilizers) | 5 | 196.16 | 246.58 | 250.79 | 0.52 | 0.47 | 0.43 |
| 20. | Photographic Raw Film & Paper | 1 | 23.90 | 33.39 | 120.00 | 0.40 | 0.51 | 1.41 |
| 21. | Dyestuffs | | | | | | | |
| 22. | Drugs & Pharmaceuticals | 4 | 221.07 | 206.11 | 253.63 | 2.13 | 1.51 | 1.66 |
| 23. | Textiles (Dyed, Printed Processed) | | | | | | | |
| 24. | Papers & Pulp (Including Paper Products) | 1 | 9.12 | 6.10 | 6.90 | 0.44 | 0.24 | 0.22 |
| 25. | Sugar | | | | | | | |
| 26. | Fermentation industries | | | | | | | |
| 27. | Food Processing Industries | | | | | | | |
| 28. | Vegetable Oils & Vanaspati | | | | | | | |
| 29. | Soaps, Cosmetics, Toilet Preparations | | | | | | | |
| 30. | Rubber Goods | 1 | 3.80 | 4.09 | 5.00 | 0.36 | 0.15 | 0.18 |
| 31. | Leather, leather Goods & Pickers | 1 | 3.96 | 4.74 | 5.68 | 2.05 | 2.05 | 2.05 |
| 32. | Glue & Gelatin | | | | | | | |
| 33. | Glass | | | | | | | |
| 34. | Ceramics | | | | | | | |
| 35. | Cement & Gypsum | | | | | | | |
| 36. | Timber Products | | | | | | | |
| 37. | Defence Industries | | | | | | | |
| 38. | Miscellaneous Industries | 7 | 1874.07 | 2689.40 | 3068.67 | 4.08 | 3.80 | 3.48 |
| | | 4 | 64.12 | 81.10 | 97.79 | 1.69 | 1.80 | 1.86 |
| Total | | 68 | 8636.50 | 10755.30 | 12423.20 | 0.66 | 0.61 | 0.58 |

Source: Data Compiled by DST

Table 11
INDUSTRIAL R&D EXPENDITURE, EXPENDITURE ON ADVERTISING NEW PLANT EQUIPMENT VERSUS SALES TURNOVER FROM 1980-81 TO 1982-83

| Year | R&D Expenditure | | Advertising Expenditure | | Expenditure on New Plant and Equipment | | Sales Turnover | | R&D Expenditure as % of Sales Turnover | | Advertising Expenditure as % of Sales Turnover | | New Plant & Equipment Expenditure as % of Sales Turnover | |
|---------|-----------------|----------------|-------------------------|----------------|--|----------------|----------------|----------------|--|----------------|--|----------------|--|----------------|
| | (Rs. lakhs) | | (Rs. lakhs) | | (Rs. lakhs) | | (Rs. lakhs) | | (Rs. lakhs) | | (Rs. lakhs) | | (Rs. lakhs) | |
| | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector |
| 1980-81 | 8536.50 | 12069.10 | 540.65 | 5052.22 | 29281.00 | 46562.30 | 1317210.00 | 1569500.00 | 0.66 | 0.77 | 0.04 | 0.32 | 2.22 | 2.97 |
| 1981-82 | 10755.30 | 14700.00 | 680.98 | 6102.46 | 15918.60 | 59161.00 | 1753580.00 | 1922930.00 | 0.61 | 0.76 | 0.04 | 0.32 | 0.91 | 3.08 |
| 1982-83 | 12423.20 | 16138.00 | 707.59 | 6627.06 | 16054.50 | 63907.60 | 2154630.00 | 236722.00 | 0.58 | 0.68 | 0.03 | 0.28 | 0.75 | 2.70 |

Source: Data compiled by DST

Table 12
R&D & S&T EXPENDITURE BY TYPE OF WORK BY CENTRAL AND STATE GOVERNMENTS FROM 1980-81 TO 1982-83
(Rs. Crores)

| Year | Central Government | | | | | State Government | | | | | Total | | | | |
|---------|--------------------|------------------|----------------------------|-------------------|--------|------------------|------------------|----------------------------|-------------------|--------|----------------|------------------|----------------------------|-------------------|--------|
| | Basic research | Applied research | Experi-mental develop-ment | Other acti-vities | Total | Basic research | Applied research | Experi-mental develop-ment | Other acti-vities | Total | Basic research | Applied research | Experi-mental develop-ment | Other acti-vities | Total |
| 1980-81 | 98.78 | 187.71 | 167.99 | 78.70 | 533.18 | 5.86 | 36.70 | 14.45 | 16.39 | 73.40 | 104.64 | 224.41 | 182.44 | 95.09 | 606.58 |
| 1981-82 | 125.02 | 231.77 | 210.72 | 93.92 | 661.43 | 6.89 | 43.72 | 17.05 | 19.51 | 87.17 | 131.91 | 275.49 | 227.77 | 113.43 | 748.60 |
| 1982-83 | 161.60 | 296.96 | 268.51 | 116.55 | 843.62 | 8.48 | 54.95 | 20.89 | 24.01 | 108.33 | 170.08 | 351.91 | 289.40 | 140.56 | 951.95 |

Source: Data Compiled by Department of Science & Technology.

Table 13
R&D EXPENDITURE BY OBJECTIVES FROM 1980-81 TO 1982-83

(Rs. Lakhs)

| Sl. No. | Objective | Central Government | | | State Governments | | |
|---------|---|--------------------|----------|----------|-------------------|---------|---------|
| | | 1980-81 | 1981-82 | 1982-83 | 1980-81 | 1981-82 | 1982-83 |
| 1. | Exploration and Assesment of Earth, Seas, Atomosphere | 2983.87 | 3972.46 | 9069.22 | 36.21 | 34.75 | 42.63 |
| 2. | Space | 5601.56 | 7503.44 | 8605.17 | | | |
| 3. | Development of Agriculture, Forestry and Fishing | 11508.06 | 13099.19 | 15724.28 | 5506.03 | 6531.23 | 8148.08 |
| 4. | Promotion of Industrial Development | 10338.87 | 12664.18 | 16072.77 | 167.14 | 247.50 | 233.72 |
| 5. | Production, Conservation and Distribution of Energy | 8444.45 | 11183.06 | 13233.11 | 126.37 | 199.20 | 251.80 |
| 6. | Development of Transport and Communication | 2349.55 | 2636.83 | 3007.18 | 82.72 | 107.60 | 149.56 |
| 7. | Development of Education Services | | | | | | |
| 8. | Development of Health Services | 1583.15 | 2113.20 | 2769.31 | 4.56 | 5.14 | 6.05 |
| 9. | Social Development and other Socio-Economic Services | 240.95 | 276.94 | 331.46 | 2.23 | 3.02 | 3.70 |
| 10. | Protection of the Environment | 74.85 | 186.28 | 473.96 | | | |
| 11. | General Advancement of Knowledge | 5137.03 | 5896.35 | 6753.19 | | | |
| 12. | Other Aims | 517.36 | 609.83 | 756.61 | 8.53 | 20.37 | 26.59 |
| 13. | Defence | 9268.32 | 12051.73 | 14067.23 | | | |
| Total | | 58048.02 | 72193.49 | 90863.49 | 5933.79 | 7148.81 | 8862.13 |

Table 13 (Contd.)
R&D EXPENDITURE BY OBJECTIVES FROM 1980-81 TO 1982-83

(Rs. Lakhs)

| Sl. No. | Objective | Private Sector | | | Total | | |
|---------|---|----------------|----------|----------|----------|----------|-----------|
| | | 1980-81 | 1981-82 | 1982-83 | 1980-81 | 1981-82 | 1982-83 |
| 1. | Exploration and Assessment of Earth, Seas, Atmosphere | 5.20 | 7.23 | 13.36 | 3025.28 | 4014.44 | 9125.21 |
| 2. | Space | | | | 5601.56 | 7503.44 | 8605.17 |
| 3. | Development of Agriculture, Forestry and Fishing | 437.78 | 514.56 | 458.23 | 17451.87 | 20144.98 | 24330.59 |
| 4. | Promotion of Industrial Development | 6383.78 | 8153.32 | 8837.89 | 16889.79 | 21065.00 | 25144.38 |
| 5. | Production, Conservation and Distribution of Energy | 1961.72 | 2259.27 | 2590.26 | 10532.54 | 13641.53 | 16075.17 |
| 6. | Development of Transport and Communication | 1484.63 | 1908.99 | 1939.27 | 3916.90 | 4653.42 | 5096.01 |
| 7. | Development of Education Services | | | | | | |
| 8. | Development of Health Services | 1792.47 | 1846.59 | 2284.87 | 3380.18 | 3964.93 | 5060.23 |
| 9. | Social Development and other Socio-Economic Services | | | | 243.18 | 279.96 | 335.16 |
| 10. | Protection of the Environment | 1.31 | 6.83 | 2.26 | 76.16 | 193.11 | 476.22 |
| 11. | General Advancement of Knowledge | 0.04 | 0.25 | 0.21 | 5137.07 | 5896.60 | 6753.40 |
| 12. | Other Aims | 2.14 | 2.99 | 11.64 | 528.03 | 633.19 | 794.84 |
| 13. | Defence | | | | 9268.32 | 12051.73 | 14067.23 |
| Total | | 12069.07 | 14700.03 | 16137.99 | 76050.88 | 94042.33 | 115863.61 |

Source: Data Compiled by DST.

Table 14
R&D EXPENDITURE BY FIELD OF SCIENCE

| | Central Government | | | State Government | | | Private Sector | | | Total | | | (Rs. lakhs) |
|-----------------------------|--------------------|----------|----------|------------------|---------|---------|----------------|----------|----------|----------|----------|-----------|-------------|
| | | | | | | | | | | | | | |
| | 1980-81 | 1981-82 | 1982-83 | 1980-81 | 1981-82 | 1982-83 | 1980-81 | 1981-82 | 1982-83 | 1980-81 | 1981-82 | 1982-83 | |
| 1. Natural Sciences | 27379.35 | 33609.07 | 45365.28 | 187.26 | 259.37 | 264.50 | 3345.99 | 4602.62 | 5076.93 | 30912.60 | 38471.06 | 50706.71 | |
| 2. Engineering & Technology | 18920.61 | 24802.44 | 29146.96 | 346.05 | 478.03 | 612.25 | 7025.92 | 8347.39 | 8854.29 | 26292.58 | 33627.86 | 38613.50 | |
| 3. Medical Sciences | 1493.04 | 2025.84 | 2499.84 | 4.56 | 5.14 | 6.05 | 1497.41 | 1552.45 | 1947.55 | 2995.01 | 3583.43 | 4453.44 | |
| 4. Agricultural Sciences | 10256.00 | 11756.95 | 13854.60 | 5395.91 | 6406.26 | 7979.32 | 199.75 | 197.57 | 259.22 | 15851.66 | 18360.78 | 22093.14 | |
| Total | 58049.00 | 72194.30 | 90866.68 | 5933.78 | 7148.80 | 8862.12 | 12069.07 | 14700.03 | 16137.99 | 76051.85 | 94043.13 | 115866.79 | |

Table 15
STOCK OF SCIENTIFIC AND TECHNICAL PERSONNEL 1950-1985

| Category of Personnel | Stock at the end of the year (000) | | | | | | | |
|--------------------------------|------------------------------------|-------|-------|-------|--------|--------|--------|-----------|
| | 1950 | 1955 | 1960 | 1965 | 1970 | 1980 | 1985 | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | Estimated |
| (a) Engineering and Technology | | | | | | | | (8) |
| (i) Degree | 21.6 | 37.5 | 62.2 | 106.7 | 185.4 | 221.4 | 266.3 | 266.3 |
| (ii) Diploma | 31.5 | 46.8 | 75.0 | 138.9 | 244.4 | 329.4 | 429.9 | 429.9 |
| (b) Science | | | | | | | | |
| (i) Post Graduates | 16.0 | 28.0 | 47.7 | 85.7 | 139.2 | 217.5 | 273.0 | 273.0 |
| (ii) Graduates | 60.0 | 102.9 | 165.6 | 261.5 | 420.0 | 750.3 | 956.5 | 956.5 |
| (c) Agriculture | | | | | | | | |
| (i) Post Graduates | 1.0 | 2.0 | 3.7 | 7.7 | 13.5 | 96.5 | 114.1 | 114.1 |
| (ii) Graduates | 6.9 | 11.5 | 20.2 | 39.4 | 47.2 | - | - | - |
| (d) Medicine | | | | | | | | |
| (i) Degree | 18.0 | 29.0 | 41.6 | 60.6 | 97.8 | 167.6 | 198.7 | 198.7 |
| (ii) Licentiate | 33.0 | 35.0 | 34.0 | 31.0 | 27.0 | N.A. | N.A. | N.A. |
| Total | 188.0 | 292.7 | 450.0 | 731.5 | 1174.5 | 1782.7 | 2238.5 | 2238.5 |

Source: Columns (2) to (6) Division of Scientific & Technical personnel CSIR Cols. (7) & (8) Sixth Five Year Plan, 1980-85, Planning Commission.
 Note: During the years, 1980 & 1985, the number of B.Sc.s who were also B.Ed.s were estimated to be 1.66 lakhs and 2.28 lakhs respectively.
 Similar figures for the earlier years are not available.

Table 16

**ESTIMATED STOCK, NUMBER OF ECONOMICALLY ACTIVE PERSONS, UNEMPLOYMENT AND
EMPLOYMENT OF SCIENTIFIC & TECHNICAL PERSONS IN 1980 AND 1985**

(Figures in thousands)

| Sl. No. | Category | 1980 (Beginning) | | | | | 1985 (Beginning) | | | |
|------------|-----------------------------|------------------|---------------------------------------|-------------------|--|--|------------------|---------------------------------------|-------------------|-----------------|
| | | Stock | No. of econo- mically active | Unemploy- ment | Unemploy- ment per centage to economy- cally active | Inter se percent- age of unemp- loyment rates | Stock | No. of economy- cally active | Unemploy- ment | Employ- ment |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| 1. | Engineering Degree Holders | 254.5 | 221.4 | 15.7 | 7.09 | 7.8 | 306.1 | 266.3 | 18.9 | 247.4 |
| 2. | Engineering Diploma Holders | 378.6 | 329.4 | 65.5 | 19.88 | 21.9 | 494.1 | 429.9 | 85.5 | 344.4 |
| 3. | Medical Graduates | 178.5 | 155.3 | 10.1 | 6.50 | 7.2 | 211.9 | 184.3 | 12.0 | 172.3 |
| 4. | Dental Surgeons | 11.6 | 10.1 | 0.2 | 1.98 | 2.2 | 13.4 | 11.6 | 0.2 | 11.4 |
| 5. | Nurses (B.Sc) | 2.2 | 2.2 | — | — | — | 2.8 | 2.8 | — | 2.8 |
| 6. | Agricultural Graduates | 98.8 | 77.1 | 8.8 | 11.41 | 12.6 | 115.9 | 90.4 | 10.3 | 80.1 |
| 7. | Veterinary Graduates | 22.3 | 19.4 | 0.7 | 3.60 | 3.9 | 27.3 | 23.7 | 0.9 | 22.8 |
| 8. | Science Graduates | 961.9 | 750.3 | 154.3 | 20.57 | 22.6 | 1226.3 | 956.5 | 196.8 | 759.7 |
| 9. | Science Post Graduates | 278.9 | 217.5 | 10.6 | 4.87 | 5.4 | 350.0 | 273.0 | 13.3 | 259.7 |
| 10. | B.Sc./B.Ed. | 213.2 | 166.3 | 24.8 | 14.90 | 16.4 | 284.2 | 227.7 | 35.7 | 191.9 |
| Total | | 2400.5 | 1949.0 | 290.7 | 14.90 | — | 3032.0 | 2466.1 | 373.6 | 2092.5 |

Source: Annexure 13.9, Page 220 of Sixth Five Year Plan, 1980-85 Planning Commission.

Table 17
FULL TIME EQUIVALENT OF MANPOWER EMPLOYED IN R&D ESTABLISHMENTS AS ON 1.4.1982

| Sl. No. | Name of Establishment | Personnel engaged primarily in R&D activities | Personnel engaged on auxilliary/scientific/technical activities | Personnel employed in administrative & other non-technical supporting activities | Total |
|---------|--|---|---|--|---------------|
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1. | Department of Atomic Energy | 5199 | 7076 | 5092 | 17367 |
| 2. | Council of Scientific & Industrial Research | 6973 | 10220 | 6291 | 23484 |
| 3. | Defence Research & Development Organisation | 6904 | 7131 | 8213 | 22248 |
| 4. | Indian Council of Agricultural Research | 6222 | 5402 | 7861 | 19485 |
| 5. | Department of Space | 3236 | 4310 | 3600 | 11146 |
| 6. | Indian Council of Medical Research | 741 | 839 | 871 | 2451 |
| 7. | Other Central Government Ministries/Agencies | 14909 | 14947 | 15699 | 45555 |
| 8. | State Governments | 13411 | 5227 | 10284 | 28922 |
| 9. | Private Sector | 14003 | 5735 | 6499 | 26237 |
| | Total | 71598 | 60887 | 64410 | 196895 |

Source: Data Compiled by DST

Table 18
WOMEN PERSONNEL IN DIFFERENT SECTORS AND DIFFERENT CATEGORIES IN R&D ESTABLISHMENTS (AS ON 1.4.1982)

| Sector | Number of Personnel | | | Total |
|----------------|-------------------------------------|--|--|--------------|
| | Engaged Primarily in R&D activities | Performing auxiliary/scientific technical activities | Providing administrative and other non technical support | |
| Central Sector | 2457 | 2707 | 4784 | 9948 |
| State Sector | 417 | 250 | 696 | 1363 |
| Private Sector | 402 | 202 | 322 | 926 |
| Total | 3276 | 3159 | 5802 | 12237 |

Source: Data compiled by DST

Table 19

PATENT APPLICATIONS FILED DURING THE PERIOD 1973-74 TO 1982-83

| year | No. of appli- cations made | No. of appli- cations brought forward from preced- ing year | Total No. of appli- cations to be examined | No. of appli- cations examined | No. of complete specifi- cations found in order for accept- ance on lst exa- mination | No. of appli- cations deemed to have been abandoned due to non- filing of complete specifi- cations | Total No. of compli- cations notified as accepted during the year | No. of appli- cations deemed to have been abandoned due to non- acceptance of complete specifi- cations | No. of appli- cations carried forward to next year | No. of patents sealed | | No. of patents in force | |
|---------|-------------------------------------|---|--|---|--|---|---|--|---|-----------------------------|---------|-------------------------------|---------|
| | | | | | | | | | | Indian | Foreign | Indian | Foreign |
| 1973-74 | 3,491 | 3,411 | 6,902 | 1,520 | - | 327 | 2,545 | 394 | 5,055 | 358 | 1,058 | 3,948 | 28,270 |
| 1974-75 | 3,406 | 5,055 | 8,461 | 2,908 | 6 | 152 | 2,505 | 398 | 5,401 | 737 | 3,207 | 3,039 | 24,758 |
| 1975-76 | 2,996 | 5,401 | 8,397 | 3,898 | 4 | 623 | 2,487 | 584 | 3,876 | 426 | 1,894 | 2,991 | 23,453 |
| 1976-77 | 3,104 | 3,876 | 6,982 | 3,612 | 6 | 295 | 2,840 | 533 | 3,067 | 928 | 1,964 | 2,746 | 19,780 |
| 1977-78 | 2,870 | 3,067 | 5,937 | 2,369 | 10 | 378 | 2,507 | 577 | 3,190 | 657 | 1,857 | 3,065 | 19,795 |
| 1978-79 | 2,932 | 3,190 | 6,124 | 1,266 | 10 | 283 | 2,070 | 498 | 4,573 | 281 | 499 | 2,469 | 13,966 |
| 1979-80 | 2,980 | 4,573 | 7,532 | 1,498 | 15 | 304 | 1,210 | 429 | 5,751 | 516 | 1,657 | 2,786 | 14,474 |
| 1980-81 | 2,954 | 5,751 | 8,705 | 2,301 | 5 | 325 | 1,007 | 372 | 6,079 | 349 | 670 | 2,757 | 14,448 |
| 1981-82 | 2,989 | 6,079 | 9,068 | 2,984 | 1 | 274 | 1,191 | 425 | 5,810 | 421 | 936 | 3,038 | 14,892 |
| 1982-83 | 3,085 | 5,810 | 8,895 | 3,165 | - | 310 | 1,580 | 734 | 5,420 | 405 | 822 | 3,329 | 15,291 |

Source: Annual Report, 1982-83 of the Controller General of Patents, Designs & Trade Marks.

Table 20
NUMBER OF APPLICATIONS FOR PATENTS FROM PERSONS IN INDIA & ABROAD DURING THE PERIOD 1973-74 TO 1982-83

| | 1973-74 | 1974-75 | 1975-76 | 1976-77 | 1977-78 | 1978-79 | 1979-80 | 1980-81 | 1981-82 | 1982-83 |
|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Indians | 976 | 1,148 | 1,129 | 1,342 | 1,097 | 1,124 | 1,055 | 1,159 | 1,093 | 1,135 |
| Foreigners resident in India | 174 | 66 | 34 | 23 | 37 | 13 | 37 | 19 | 19 | - |
| Foreigners resident abroad | 2,341 | 2,192 | 1,833 | 1,739 | 1,736 | 1,795 | 1,888 | 1,776 | 1,877 | 1,950 |
| Total | 3,491 | 3,406 | 2,996 | 3,104 | 2,870 | 2,932 | 2,980 | 2,954 | 2,989 | 3,085 |

Source: Annual Report, 1982-83 of the Controller General of patents, Designs & Trade Marks.

Table-21
APPLICATIONS FOR PATENTS FILED IN YEAR 1981-82 & 1982-83 FROM DIFFERENT STATES

| State/Union Territory | No. of applications | |
|-----------------------|---------------------|-------------|
| | 1981-82 | 1982-83 |
| Maharashtra | 281 | 279 |
| Delhi | 273 | 270 |
| WestBengal | 120 | 132 |
| Gujarat | 40 | 52 |
| Karnataka | 43 | 50 |
| Andhra Pradesh | 23 | 40 |
| Kerala | 37 | 36 |
| Uttar Pradesh | 53 | 29 |
| Bihar | 44 | 29 |
| Madhya Pradesh | 16 | 21 |
| Haryana | 19 | 16 |
| Rajasthan | 10 | 12 |
| Assam | 3 | 11 |
| Punjab | 10 | 8 |
| Orissa | 6 | 7 |
| Goa, Daman & Diu | 2 | 4 |
| Chandigarh | 2 | 2 |
| Himachal Pradesh | 4 | 1 |
| Jammu & Kashmir | — | 1 |
| Pondy cherry | 1 | 1 |
| Tripura | 2 | — |
| Total | 1111 | 1135 |

Source: Annual Report 1982-83 of the Controller General of Patents, Designs & Trade Marks.

Table-22
ROYALTY AND PREMIA EARNED BY NRDC FROM 1973-74 TO 1982-83

| Year | Gross royalty (Rs. in lakhs) | Gross Premia (Rs. in lakhs) | Total (Rs. in lakhs) |
|---------|---------------------------------|--------------------------------|-------------------------|
| 1973-74 | 14.38 | 16.51 | 30.89 |
| 1974-75 | 16.63 | 20.43 | 37.06 |
| 1975-76 | 44.97 | 17.14 | 62.11 |
| 1976-77 | 51.54 | 15.97 | 67.51 |
| 1977-78 | 44.98 | 15.42 | 60.40 |
| 1978-79 | 46.77 | 18.93 | 65.70 |
| 1979-80 | 56.53 | 16.33 | 72.86 |
| 1980-81 | 72.75 | 11.03 | 83.78 |
| 1981-82 | 85.08 | 17.34 | 102.42 |
| 1982-83 | 72.32 | 32.90 | 105.22 |

Source: Annual Report of NRDC, 1982-83

Table-23
APPLICATIONS FOR PATENTS FILED IN THE YEAR 1981-82 & 1982-83 BY FOREIGN COUNTRIES

| S.No. | Country | No. of applications filed | |
|-------|-----------------------------|---------------------------|---------|
| | | 1981-82 | 1982-83 |
| 1. | USA | 655 | 714 |
| 2. | Federal Republic of Germany | 229 | 273 |
| 3. | UK | 233 | 228 |
| 4. | France | 128 | 146 |
| 5. | Japan | 98 | 128 |
| 6. | Italy | 80 | 87 |
| 7. | Switzerland | 72 | 64 |
| 8. | Netherland | 59 | 42 |
| 9. | USSR | 52 | 37 |
| 10. | Australia | 37 | 24 |
| 11. | Others | 234 | 207 |
| Total | | 1877 | 1950 |

Source: Annual Report, 1982-83 of the Controller General of Patents, Designs & Trade Marks

Table-24
PER CAPITA R&D EXPENDITURE, R&D EXPENDITURE AS % OF GNP FOR SELECTED COUNTRIES

| Sl. No. | Name of the Country | Year | Per Capita R&D expenditure in US \$ | Per Capita GNP in US \$ | R&D Expenditure as % of GNP |
|---------|---------------------|---------|-------------------------------------|-------------------------|-----------------------------|
| 1. | Argentina | 1980 | 27.36 | 2,560(1981) | 0.6 |
| 2. | Brazil | 1978 | 10.09 | 2,220(1981) | 0.6 |
| 3. | Bulgaria | 1981 | 71.03 | n.a | 2.6 |
| 4. | Canada | 1981 | 140.64 | 11,400(1981) | 1.3 |
| 5. | Czechoslovakia | 1981 | 100.02 | 4,720(1978) | 3.8 |
| 6. | Finland | 1981 | 120.17 | 10,680(1981) | 1.2 |
| 7. | France | 1979 | 194.02 | 12,190(1981) | 1.8 |
| 8. | Germany(FRG) | 1979 | 297.87 | 13,450(1981) | 2.4 |
| 9. | Greece | 1979 | 7.55 | 4,420(1981) | 0.2 |
| 10. | Hungary | 1981 | 51.87 | 2,100(1981) | 3.3 |
| 11. | India | 1982-83 | 1.87 | 219(1982) | 0.8 |
| 12. | Italy | 1980 | 59.43 | 6,960(1981) | 0.8 |
| 13. | Japan | 1981 | 231.1 | 10,080(1981) | 2.4 |
| 14. | Korea (Republic) | 1981 | 11.13 | 1,700(1981) | 0.7 |
| 15. | Netherland | 1980 | 213.12 | 11,790(1980) | 1.9 |
| 16. | Pakistan | 1981 | 0.49 | 350(1981) | 0.2 |
| 17. | Phillipines | 1980 | 1.65 | 790(1981) | 0.2 |
| 18. | Poland | 1981 | 36.04 | 3,660(1978) | 2.2 |
| 19. | Portugal | 1980 | 8.28 | 2,520(1980) | 0.3 |
| 20. | Sweden | 1979 | 242.26 | 14,870(1981) | 2.0 |
| 21. | Switzerland | 1979 | 361.22 | 17,430(1981) | 2.3 |
| 22. | UK | 1978 | 120.74 | 9,110(1981) | 2.2 |
| 23. | USA | 1981 | 303.90 | 12,820(1981) | 2.5 |
| 24. | USSR | 1981 | 121.40 | 3,700(1976) | 4.9 |
| 25. | Yugoslavia | 1980 | 26.00 | 2,790(1981) | 0.8 |

Source: 1) Statistical Year Book, 1983, UNESCO Table 5.14

2) World Development Report, 1983, World Bank

NOTE: Figures in brackets indicate the year to which the data relates.

Table-25
SCIENTISTS, ENGINEERS & TECHNICIANS FOR SELECTED COUNTRIES

| Sl. No. | Name of the Country | Year | Scientists, Engineers & Technicians per thousand population | Scientists, Engineers & Technicians in R&D per thousand population |
|---------|---------------------|------|---|--|
| 1. | Argentina | 1980 | 83.727 | 0.842 |
| 2. | Brazil | 1978 | n.a. | 0.507 |
| 3. | Bulgaria | 1981 | 101.840 | 5.988 |
| 4. | Czechoslovakia | 1981 | n.a. | 6.706 |
| 5. | France | 1979 | 23.75 | 4.315 |
| 6. | Germany(FRG) | 1979 | 59 | 3.872 |
| 7. | Greece | 1979 | n.a. | 0.383 |
| 8. | India | 1982 | 2.63 * | 0.19 |
| 9. | Italy | 1980 | n.a. | 1.308 |
| 10. | Japan | 1981 | 184.054 | 4.705 |
| 11. | Korea (Republic) | 1981 | 79.334 | 0.763 |
| 12. | Netherland | 1980 | 164.269 | 3.787 |
| 13. | Pakistan | 1981 | n.a. | 0.138 |
| 14. | Phillipines | 1980 | n.a. | 0.168 |
| 15. | Poland | 1981 | 14.533 | 0.391 |
| 16. | Portugal | 1980 | n.a. | 0.556 |
| 17. | Swedan | 1979 | 262.648 | 4.392 |
| 18. | Switzerland | 1979 | 39.657 | 5.094 |
| 19. | UK | 1978 | n.a. | 3.021 |
| 20. | USA | 1981 | 13.781 | 2.875 |
| 21. | USSR | 1981 | 111.32 | 1.628 |
| 22. | Yugoslavia | 1980 | 145.233 | 3.021 |

Source: 1) Statistical Year Book, 1983, UNESCO Table 5.14

* for 1980

Table-26

S&T EXPENDITURE/OUTLAYS IN SIXTH FIVE YEAR PLAN (1980-85)

(Rs. Crores)

| Department | 1980-85 | | 1980-81 (Act) | | 1981-82 (Act) | | 1982-83 (RE) | | 1983-84 (BE) | |
|-----------------------------------|-----------|----------|---------------|----------|---------------|----------|--------------|----------|--------------|----------|
| | Plan | Non-plan | Plan | Non-plan | Plan | Non-plan | Plan | Non-plan | Plan | Non-plan |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| A. S&T Sector | | | | | | | | | | |
| Agencies | | | | | | | | | | |
| 1. Atomic Energy R&D | 248.98 | 284.59 | 24.02 | 47.29 | 32.97 | 55.64 | 38.54 | 61.99 | 46.49 | 68.20 |
| 2. Space (S&T) | 245.80 | 146.92 | 28.55 | 29.29 | 46.16 | 29.53 | 54.81 | 31.26 | 69.00 | 33.02 |
| 3. DST | 92.87 | 189.55 | 10.36 | 31.24 | 14.41 | 31.24 | 21.00 | 39.39 | 23.95 | 46.27 |
| 4. Environment (S&T) | 42.00* | 13.12 | 1.71 | 2.70 | 3.52 | 4.01 | 5.14 | 4.13 | 9.50 | 4.46 |
| 5. CSIR | 189.00(T) | 245.61 | 28.10 | 39.30 | 37.54 | 48.18 | 45.95 | 48.45 | 47.00 | 50.50 |
| 6. Ocean Dev. | 40.00 | - | 0.02 | - | 8.34 | 0.04 | 45.34= | 7.18@ | 32.00 | 0.27 |
| 7. National Test House | 8.50 | 3.56 | 0.43 | 0.71 | 0.68 | 0.82 | 1.42 | 0.81 | 2.00 | 0.82 |
| Sub-Total 'A' | 867.15 | 883.35 | 93.19 | 150.53 | 143.62 | 169.46 | 212.20 | 193.21 | 229.94 | 203.54 |
| B. Sectors | | | | | | | | | | |
| Agriculture and Irrigation | | | | | | | | | | |
| 8. ICAR | 340.00 | 190.00 | 42.31 | 34.00 | 47.92 | 38.37 | 54.85 | 45.07 | 70.00 | 46.12 |
| 9. FRI | 12.00 | - | 1.22 | - | 1.51 | - | 2.16 | - | 2.30 | - |
| 10. Irrigation | 20.45 | 14.00 | 1.52 | 2.60 | 1.64 | 2.77 | 3.49 | 2.99 | 2.51 | 3.27 |
| 11. Food | 8.10 | 3.30 | 0.39 | 0.54 | 0.65 | 0.69 | 1.04 | 0.79 | 1.29 | 0.88 |
| 12. IMD and Institutes | 45.00 | 73.00 | 8.30 | 13.16 | 9.57 | 14.37 | 10.38 | 16.84 | 12.60 | 17.81 |
| Total Agriculture and Irrigation | 425.55 | 280.30 | 53.74 | 50.30 | 61.29 | 56.20 | 71.92 | 65.69 | 88.70 | 68.08 |

| Department | 1980-85 | | 1980-81 (Act) | | 1981-82 (Act) | | 1982-83 (RE) | | 1983-84 (BE) | |
|-------------------------------------|----------|----------|---------------|----------|---------------|----------|--------------|----------|--------------|-----------|
| | | | | | | | | | | |
| | Plan | Non-plan | Plan | Non-plan | Plan | Non-plan | Plan | Non-plan | Plan | Non-plan |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| Industries | | | | | | | | | | |
| 13. Heavy Industries* | 57.51 | 100.00 | 6.22 | 22.42 | 6.54 | 22.53 | 8.31 | 22.64 | 11.76 | 23.00 |
| 14. Ind. Dev. | 18.80= | 10.00 | 4.17 | 0.51 | 4.68 | 0.50 | 5.96 | 0.51 | 8.13 | 0.55 |
| 15. Commerce | 32.40* | 7.20 | 4.87 | 1.38 | 4.74 | 1.33 | 7.41 | 1.33 | 8.18 | 1.82 |
| 16. Steel | 79.85(p) | - | 5.50 | - | 10.34 | - | 10.06 | - | 12.87 | - |
| 17. Mines | 16.16 | - | 1.90 | - | 1.64 | - | 4.00 | - | 3.73 | - |
| 18. Chem. & Fert. | 26.03 | 3.50 | 0.70 | 0.60 | 3.79 | 0.70 | 3.53 | 0.80 | 4.40 | 0.90 (E) |
| 19. Electronics | 32.34 | 3.00 | 3.86 | 0.49 | 5.49 | - | 5.23 | - | 8.00 | - |
| Total Industries | 263.09 | 123.70 | 27.22 | 25.40 | 37.22 | 25.06 | 44.50 | 25.28 | 57.07 | 26.27 |
| Energy | | | | | | | | | | |
| 20. Power | 53.10 | 5.00 | 0.90 | 0.89 | 3.63 | 1.57 | 4.39 | 1.75 | 8.14 | 1.82 |
| 21. Coal | 18.00+ | - | 0.61 | - | 0.58 | - | 1.23 | - | 2.00 | - |
| 22. Petroleum | 37.66@@ | 26.43@@ | 4.54 | 5.00 | 4.98 | 6.00 | 10.72 | 6.40 | 13.64 | 7.00 |
| 23. New Energy Sources | 50.00 | - | 4.26 | - | 10.53 | - | 12.80 | - | 17.00 | - |
| Total Energy | 158.76 | 31.43 | 10.31 | 5.89 | 19.72 | 7.57 | 29.14 | 8.15 | 40.78 | 8.82 |
| Transport and Communications | | | | | | | | | | |
| 24. Communications | 62.15 | 33.00 | 3.00 | 8.07 | 5.85 | 9.31 | 7.49 | 10.83 | 9.69 | 12.07 |
| 25. Information and Broadcasting | 2.50 | 2.00 | 0.33 | 0.28 | 0.16 | 0.35 | 0.23 | 0.34 | 0.30 | 0.35 (E) |
| 26. Shipping and Transport | 9.75* | - | 0.63 | - | 0.80 | - | 0.68 | - | 1.23 | - |
| 27. TCA - R&D | 1.50 | 0.80 | 0.10 | 0.19 | 0.05 | 0.19 | 0.11 | 0.27 | 0.31 | 0.29 |
| 28. Railways | - | 36.00 | - | 5.94 | - | 7.72 | - | 12.10 | - | 15.00 (E) |
| Total Transport and communications | 75.90 | 71.80 | 4.06 | 14.48 | 6.86 | 17.57 | 8.51 | 23.54 | 11.53 | 27.71 |

(Rs. Crores)

| Department | 1980-85 | | 1980-81 (Act) | | 1981-82 (Act) | | 1982-83 (RE) | | 1983-84 (BE) | |
|------------------------------------|---------|----------|---------------|----------|---------------|----------|--------------|----------|--------------|-----------|
| | Plan | Non-plan | Plan | Non-plan | Plan | Non-plan | Plan | Non-plan | Plan | Non-plan |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| Social Services | | | | | | | | | | |
| 29. Housing and Construction Tech. | 4.00 | - | - | - | - | - | 0.01 | - | 0.25** | - |
| 30. Labour | 1.06 | - | - | - | 0.04 | - | 0.07 | - | 0.18 | - |
| 31. Education | 112.00 | 30.00 | 16.40 | 6.25 | 22.90 | 8.25 | 29.40 | 9.24 | 36.00 | 10.00 (E) |
| 32. ICMR | 40.00 | 26.00 | 4.88 | 4.28 | 7.60 | 4.53 | 10.00 | 4.80 | 12.50 | 5.13 |
| 33. Rural Devt. | 10.05 | - | 0.88 | - | 1.00 | - | 1.60 | - | 1.80 | - |
| 34. Social Welfare | 2.00 | - | 0.33 | - | 0.10 | - | 0.10 | - | 0.20 | - |
| Total Social Services | 169.11 | 56.00 | 22.49 | 10.53 | 31.64 | 12.78 | 41.18 | 14.04 | 50.93 | 15.13 |
| Total Sectors (B) | 1092.41 | 563.23 | 117.82 | 106.60 | 156.73 | 119.18 | 195.25 | 136.70 | 249.01 | 146.01 |
| Grand Total (A + B) | 1959.56 | 1446.58 | 211.01 | 257.13 | 300.35 | 288.64 | 407.45 | 329.91 | 478.95 | 349.55 |

(T) Changed from 170 to 189 due to retransfer of 4 laboratories to CSIR.

* VIth Plan outlay of Rs. 8 crores and 1982-83 (BE) of Rs. 3.30 crores transferred from Hill Area Dev. programme excluded.

= Includes the external resources being obtained for CRV FORV and Second Hand Vessels.

@ Rs. 7 crores for equipments for CRV is shown under Non-plan in Demands for Grants.

=/ Includes additional outlays pertaining to Hand Tool Inst. and IDTC, Madras from unallocated amount.

** Includes Hostel component for scientists etc., under housing.

@@ Due to change of IIP to CSIR, there is a change in VI Plan allocation

+ Change in VI Plan outlay due to retransfer to 4 laboratories to CSIR

(p) VI Plan allocation changed from 41.70 to 79.85 due to addition of S&T of MMTC, Sponge Iron India etc.

E Estimates

Department of Atomic Energy

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Bhabha Atomic Research Centre Trombay Bombay-400 085 2. Reactor Research Centre Kalpakkam, Dist. chingleput, Tamil Nadu-693 010 3. Atomic Minerals Division AMD Complex 1-10-153, Begumpeth, Hyderabad-500 016 4. Variable energy Cyclotron, 1/AF Vidhan nagar, Calcutta-700 064 5. Indian Rare Earths Ltd. Pill Court, 111, M.K. road, Bombay-400 020 | <ol style="list-style-type: none"> 6. Electronics Corporation of India Limited, Cherlapalli, Hyderabad 7. Uranium Corporation of India Ltd., P.O. Jaduguda Mines, Dist. Singhbhum, Bihar-832 102 8. Tata Institute of fundamental Research, Dr. Homi Bhabha Road Coloba Bombay-400 005 9. Tata Memorial Centre Dr. Earmest Morges Marg Parel, Bombay-400 012 10. Saha Institute of Nucleur Physics 92, Acharya Chandra Road Calcutta-700 009 |
|---|---|

Council of Scientific and Industrial Research

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Central Building Research Institute, Roorkee-24 667 2. Central Drug Research Institute Chattar Manzil Palace Post Box No. 173, Lucknow-226 001 3. Central Electro Chemical Research Institute, CECRI nagar Karaikudi-623 006 4. Central Electronics Engineering Research Institute, Pilani-333 031 5. Central Food Technological Research Institute, Vv Mojalla Mysore-570 013 6. Central Fuel Research Institute, P.O. FRI, Dhanbad-828 108 7. Central Glass and Ceramic Research Institute, P.O. Jadavpur University Calcutta-700 032 8. Central Institute of Medicinal & Aromatic Plants P.O. Faridnagar, Lucknow-226 010 | <ol style="list-style-type: none"> 9. Central Leather Research Institute, Adyar Madras-600 020 10. Central Mechanical Engineering Research Institute, Mahatma Gandhi Avenue Durgapur-713 209 11. Central Mining Research Station Barwa Road Dhanbad-826 001 12. Central Road Research Institute P.O. CRRI New Delhi-110 020 13. Central Salt and Marine Chemicals Research Institute, Bhavnagar-364 002 14. Central Scientific Instruments Organisation, Sector 30 Chandigarh-160 020 15. Centre for Cellular and Molecular Biology, Regional Research Laboratory Hyderabad-500 009 16. CSIR Centre for Biochemicals, VP Chest Institute Building, University Campus Delhi-110 007 |
|--|--|

17. CSIR Complex Cochin
Industrial Estate PO,
Pappanamcode, Trivandrum-695 018
18. CSIR Madras Complex
Adyar
Madras-600 020
19. Electrical Research and
Development Association
P.B. No. 760, Makarpura
Industrial Estate
P.O. Vadodara-390 010
20. Indian Institute of Chemical
Biology,
4, Raja SC Mullick Road
Calcutta-700 032
21. Indian Institute of Petroleum
P.O. IIP
Dehradun-248 005
22. Indian National Scientific
Documentation Centre, Hillside Road
New Delhi-110 012
23. Industrial Toxicology Research
Centre, Mahatma Gandhi Marg,
Lucknow-226 001
24. National Aeronautical Laboratory
Bangalore-560 017
25. National Botanical Research
Institute, Rana pratap Marg
Lucknow-226 001
26. National Chemical Laboratory
Pune-411 008
27. National Environmental engineering
Research Institute
Nehru Marg, Nagpur-440 020
28. National Geophysical Research
Institute, Uppal Road,
Hyderabad-500 007
29. National Institute of Oceanography
dona Paula, Goa-403 004
30. National Institute of Science
Technology and Development Studies
CSIR Headquarters, Hill Side Road
New Delhi-110 012
31. National Metallurgical Laboratory
Jamshedpur-831 007
32. National Physical Laboratory
Hillside Road, New Delhi-110 012
33. Publications and Information
Directorate, Hillside Road,
New Delhi-110 012
34. Regional Research Laboratory
Bhopal, CSIR Headquarters,
Rafi Marg, New Delhi-110 001
35. Regional Research Laboratory
Bhubanewar-751 004
36. Regional Research Laboratory
Hyderabad-500 009
37. Regional Research Laboratory
Jammu Tawi-180 001
38. Regional Research Laboratory
Jorhat-785 006
39. Regional Research Laboratory
Industrial Estate PO,
Pappanamcode
Trivandrum-695 018
40. Structural engineering
Research Centre
Adyar, CSIR Complex
Madras-600 020
41. Structural Engineering
Research Centre
Roorkee-247 667
42. Tocklai Experimental Station
Tea Research Association
Jorhat-785 008

Defence Research and Development Organisation

1. Armament Research & Development
Establishment, Pashan
Pune-411 021
2. Explosives Research & Development
laboratory, Pashan
Pune-411 021
3. Instruments Research & Development
Establishment, Raipur
Dehradun-248 008
4. Terminal Ballistics Research
Laboratory, Sector 30,
Chandigarh-160 020

5. Proof & Experimental Establishment
Balasore-756 001
6. Defence Research & Development
Laboratory, Phisalbanda, PO, DMRL,
Hyderabad-500 258
7. Electronics & Radar Development
Establishment, P.O. Box No. 5108
High Grounds, Bangalore-560 001
8. Solid State Physics Laboratory
Lucknow Road
Timarpur, Delhi-110 007
9. Defence Electronics Research
Laboratory, Chandrayanagutta Lines
Hyderabad-500 005
10. Defence Electronics Applications
Laboratory, Sunder Wala Camp,
P.O. Raipur, Dehra Dun-248 008
11. Research & Development
Establishment (Engineers)
Pioneer Lines Dighi
Pune-411 015
12. Snow & Avalanche Study
C/O 56 APO
13. Defence Institute of Fire
Research, Probyn Road
Delhi-110 007
14. Combat Vehicles Research &
Development Establishment, Avadi,
Madras-600 054
15. Vehicles Research & Development
Establishment,
Ahmednagar-414 001
16. Aeronautical Development
Establishment, Jeewan Bhimanagar
Bangalore-560 075
17. Gas Turbine Research Establishment
Suranjan Das Road,
P.B. No. 1777
Bangalore-560 075
18. Centre for Aeronautical Systems
Studies and Analysis
263, Mahalakshmi layout
Bangalore-560 010
19. Defence Bio-Engineering and
Electro Medical Laboratory
Post Bag No. 7579, Jeewan Bima
Nagar (PO), Bangalore-560 075
20. Naval Chemical & Metallurgical
Laboratory, Naval Dockyard
Bombay-400 001.
21. Naval Physical & Oceanographic
Laboratory, Naval Base,
Cochin-682 004
22. Naval Science & Technological
Laboratory, Vigyan Nagar
Vishakhapatnam
23. Defence Science Centre
Metcalf House
Delhi-110 054
24. Defence Materials & Stores Research
& Development Establishment
P.B. No. 320, Kanpur-208 004
25. Defence Metallurgical Research
P.O. DMRL, Hyderabad-500 258
26. Defence Laboratory
Post Box No. 136, Jodhpur-342 001.
27. Aerial Delivery Research &
Development Establishment
P.B.No. 51
Station Road, Agra Cantt.
28. Defence Research & Development
Establishment, Tansen Road,
Gwalior-474 002
29. Defence Food Research Laboratory
Jyoti Nagar
Mysore-570 010
30. Defence Research Laboratory
Post Box No. 2
Tezpur (ASSAM)-784 001
31. Field Research Laboratory
C/o 56 APO
32. Defence Scientific Information and
Documentation Centre
Metcalf House, Delhi-110 054
33. Institute of Nuclear Medicine and
Allied Sciences, Probyn Road,
Delhi-110 007
34. Defence Institute of Physiology and
Allied Sciences
Delhi Cantt-110 010
35. Agricultural Research Unit
Almora
36. Defence Research & Development Unit
S-2/2, Commissariate Road,
Hastings, Calcutta-700 022

37. Institute of Armament Technology
Singabad Road
Girinagar, Pune-411 025
38. Defence Institute of Work Study
Landour Cantt-248 179,
Mussoorie
39. Institute for Systems Studies &
Analysis (ISSA)
Metcalfe House, Delhi-110 054

40. Defence Terrain Research Laboratory
Metcalfe House
Delhi-110 054
41. Defence Institute of Physiological
Research West Block No. 8 Wing No. 1
R.K. Puram, New Delhi-110 022
42. Scientific Analysis Group (SAG),
Metcalfe House, Delhi-110 054

Department of Electronics

1. Computer Maintenance Corporation
8th Floor, All India Building
Nariman Point
Bombay-400 001
2. Electronics Trade and Technology
Development Corporation
15/49, Malcha Marg
New Delhi-110 021

3. National Centre for Software
Development and Computing Techniques
Tata Institute of Fundamental,
Research, Homi Bhabha Road
Colaba, Bombay-400 003

Department of Environment

1. Botanical Survey of India
Post Office: Botany Gardens
Shibpur, Howrah-700 003
2. National Museum of Natural History
Barakhamba Road
New Delhi-110 001

3. Zoological Survey of India
34, Chittranjan Avenue,
Calcutta-700 012

Indian Council of Agricultural Research

1. All India Coordinated Rice
Improvement Project
Rajendra Nagar
Hyderabad-500 030
2. All India Coordinated Research
Project on Dry Land Agriculture
2-2-58/60, Amberpet
Hyderabad-500 013
3. Central Agricultural Research
Institute, For Andaman & Nicobar
Group of Islands
Port Blair-744 101
4. Central Avian Research Institute
Izatnagar-243 122

5. Central Arid Zone Research
Institute,
Jodhpur-342 001
6. Central Inland Fisheries
Research Institute
Barrackpore-743 101
7. Central Institute of Agriculture
Shri Guru Teg Bahadur Complex
Addl. 'A' Block, New Market
T.T. Nagar, Bhopal-462 003
8. Central Institute for Cotton
Research, 95, Pushpa Kunj
Canal Road, New Ramdaspeth
Nagpur-440 010

9. Central Institute of Fishereis Education, Post Box No. 7392 Kokori Camp, Jaiprakash Road Bombay-400 061
10. Central Institute of Fisheries Technology, P.O. Mastsyapuri, Cochin-682 029
11. Central Marine Fisheries Research Institute, P.O. No. 1912 Cochin-682 018
12. Central Plantation Crops Research Institute, Post Kudlu, Kasargod-675 017
13. Central Potato Research Institute Simla-171 001
14. Central Rice Research Institute Cuttack-753 006
15. Central Sheep & Wool Research Institute, P.O. Avikanagar-304 501 Via-Jaipur
16. Central Soil Salinity Research Institute, Karnal-132 001
17. Central Soil & Water Conservation Research & Training Institute 218, Kaulagarh Road, Dehradun-248 195
18. Central Tobacco Research Institute Rajahmundry-533 104
19. Central Tuber Crops Research Institute, Sreekariyam Trivandrum-695 017
20. Cotton Technological Research Laboratory, Adenwala Road, Matunga, Bombay-400 019
21. Directorate of Oilseeds Research 'D' Block, College of Agriculture, Rajendranagar, Hyderabad-500 030
22. Indian Agricultural Research Institute, New Delhi-110 012
23. Indian Agricultural Statistics Research Institute, Library Avenue New Delhi-110 012
24. ICAR, Research Complex for North Eastern Hills Region Cadar Lodge, Jawai Road, Shillong-793 003
25. Indian Grassland & Fodder Research Institute, Gwalior Jhansi Road Jhansi-234 001
26. Indian Institute of Horticultural Research, 255 Upper Palace Orchards Bangalore-560 080
27. Indian Institute of Sugarcane Research P.O. Dilkhusa Lucknow-226 002
28. Indian Lac Research Institute P.O. Namkum Ranchi-834 010
29. Indian Veterinary Research Institute, Izatnagar-243 122
30. Jute Agricultural Research Institute, 24-Paraganas, P.O. Barrackpore-743 101
31. Jute Technological Research Laboratory, 12, Regent Park Calcutta-700 040
32. National Academy for Agricultural Research Management, Rajendranagar Hyderabad-500 030
33. National Bureau of Plant Genetic FCI, Building, CTO Complex Pusa, New Delhi-110 012
34. National Bureau of Soil Survey and Land Use Planning, Seminary Hills Nagpur-440 006
35. National Dairy Research Institute Karnal-132 001
36. National Goat Research Institute Makhdoom, PO Farah, District, Mathura-281 122
37. National Research Centre for Groundnut, Maharashi Dayanand Farm Gujarat Agricultural University Campus, Junagadh
38. Sugarcane Breeding Institute Lawley Road, Coimbatore-641 007
39. Vivekanands Parvitiya Krishi Anusandhan Shala Almora-263 601

Department of Science & Technology

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Birbal Sahni Instt. of Paleobotany, 53, University Road Lucknow-226 007 2. Bose Institute 93/1, Acharya Prafulla Chandra Road, Calcutta-700 009 3. Bombay Natural History Society Hornbil House, Shahid Bhagat Singh Road, Bombay-400 023 4. Indian Academy of Science Bangalore 5. Central Electronics Ltd. Industrial Area 4 Sahibabad-201 005 6. Indian National Science Academy Bahadur Shah Zafar Marg, New Delhi-110 002 7. Indian Science Congress Association, Dr. Biresluha Street Calcutta-700 017 8. Indian Association for the Cultivation of Science, Jadavpur Calcutta-700 032 9. Maharashtra Association for the Cultivation of Science Law College Road Poona-411 004 | <ol style="list-style-type: none"> 10. National Atlas and Thematic Mapping Organisation 50-A, Garihat Road, Calcutta-700 019 11. National Institute of Immunology Jawahar Lal Nehru University New Delhi-110 029 12. National Research Development Corpn., 20-22, Zamroodpur Community Centre, Kailash Colony Extension, New Delhi-110 048 13. Padmja Naidu Himalayan Zoological Park, Jawahar Park, Jawahar Parbat, Darjeeling 14. Raman Research Institute Hebbal P.O. Bangalore-560 006 15. Sree Chitra Tirunal Medical Institute for Science and Technology, Trivandrum 16. Survey of India, Block No.8 Hathibarkala Estate Dehradun-248 001 17. Wadia Instt. of Himalayan Geology 13, Municipal Road Dehradun-248 001 |
|--|--|

Department of Space

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. INSAT-I Space Segment Project Office, Chandra Kiran Building Kasturba Road Bangalore-560 001 2. National Remote Sensing Agency, No.4, Sardar Patel Road, Secunderabad-500 003 3. Physical Research Laboratory Navrangapura, Ahmedabad-380 009 4. Indian Space Research Organisation Headquarters, Cauvery Bhavan Kampegowda Road Bangalore-560 009 | <ol style="list-style-type: none"> 5. ISRO Satellite Centre A-1-6, Peenya Industrial Estate Bangalore-560 058 6. Space Applications Centre Jodhpur Tekhra Ahmedabad-380 053 7. SHAR Centre Sriharikota, Sullurupeta Nellore Dist. 524 124 8. Vikram Sarabhai Space Centre, Trivandrum-695 002 |
|--|---|

Indian Council of Medical Research

1. Central Jalma Institute for Leprosy, Tajganj
Agra
2. Cytology Research Centre, Maulana Azad Medical College
New Delhi-110 002
3. Entrovirus Research Centre Haffkine Institute
Parel, Bombay-400 012
4. Field Research Centre Mental Hospital
Agra-282 002
5. Food Drug & Toxicology Research Centre, National Institute of Nutrition
Jamai-Osmania, Hyderabad-500 007
6. ICMR Haematology Unit School of Tropical Medicine
Calcutta-73
7. Institute of Immunchaematology, Seth G.S. Medical College
Parel, Bombay-400 017
8. Institute of Pathology Safdarjang Hospital
New Delhi-110 029
9. Institute for Research in Medical Statistics Sathyamurthi Road
Chetput
Madras-600 031
10. Institute for Research in Medical Statistics ICMR Headquarters Office
Ansari Nagar
New Delhi-110 029
11. Institute for Research in Reproduction, Jehangir Merwanji Street, Parel
Bombay-400 012
12. Laboratory Animal, Information Service Centre National Institute of Nutrition,
Jamai-Osmania, Hyderabad-500 007
13. Malaria Research Centre 22, Sham Nath Marg
Delhi-110 054
14. National Institute for Cholera & Enteric Diseases, P-33 Scheme XM
Beliaghata, Calcutta-700 010
15. National Institute of Occupational Health, Meghani Nagar
Ahmedabad-380 016
16. National Institute of Nutrition Jamai-Osmania,
Hyderabad-500 007
17. National Institute of Virology 20-A, Dr. Ambedkar Road
Post Box No. 11
Pune-411 001
18. Rajendra Memorial Research Institute of Medical Sciences
Agam Kuan
Patna-800 001
19. Regional Medical Research Centre East Chowkindinghee
Dibrugarh
20. Regional Medical Research Centre 107(P) Acharya Vihar
Bhubaneswar-751 013
21. Regional Medical Research Centre Ferzand Ali Market
Aberdeen Bazar
Port Blair-744 104
22. Regional Occupational Health Centre Health Centre (Eastern)
C/o All India Institute of Hygiene & Public Health
110, Chittaranjan Avenue
Calcutta-700 012
23. Regional Occupational Health Centre (Southern) Ground Floor
PPC Block
Bangalore Medical College Campus
Bangalore-560 002
24. Tuberculosis Research Centre Spur Tank Road,
Chetput
Madras-600 031
25. Vector Control Research Centre Opp. EST Hospital
Indra Nagar
Pondicherry-605 006

Ministry of Agriculture & Rural Reconstruction

Department of Agriculture & Cooperation

1. Central Cattle Breeding Farm,
Chiplima, P.O. Kolamati,
Distt. Sambalpur, (Orissa).
2. Central Cattle Breeding Farm,
Seliligoda, Distt. Koraput,
(Orissa).
3. Central Cattle Breeding Farm,
Alamadhi (Via) Red Hills,
Madras-600 054
4. Central Cattle Breeding Farm,
Dhamrod P.O. 394 125
5. Central Poultry Breeding Farm
Bombay-400 065
6. Central Poultry Breeding Farm,
Hessarghatta, Bangalore-560 006.
7. Central Poultry Beeding Farm,
Bhubaneswar (Orissa).
8. Forest Research Institute & Colleges
P.O. New Forest
Dehra Dun-248 006
9. Forest Survey of India
Dehradun-248 006
10. High Level Inservice Training
(Poultry) Institute
Hessarghatta,
Bangalore-560 006.
11. Regional Station on Forage
Production & Demonstration,
Suratgarh-335 803.
12. Regional Station on Forage
Production & Demonstration,
H.No. 1-9699/A, Vidyasagar,
Hyderabad-500 044
13. Regional Station on Forage
Production & Demonstration,
Rajbagh, Srinagar-190 001.
14. Regional Station on Forage
Production & Demonstration,
Alamadhi (Via) Red Hills,
Madras-600 054
15. Regional Station on Forage
Production & Demonstration,
Hissar (Harayana).
16. Regional Station on Forage
Production & Demonstration,
Sector No. 30,
Gandhi Nagar-382 038.
17. Regional Station on Forage
Production & Demonstration
P/7 107, Layani, P.O.
Kalyani, Distt. Nadia
(West Bengal).

Ministry of Chemicals & Fertilizers

1. FACT Engineering & Design
Organisation,
Udyogmandal-682 501.
2. Fertilizer Planning and Development
India Limited CIFT Building
Sindri-828 122.
3. Hindustan Antibiotics Ltd.,
Pimpri, Pune-411 018.
4. Hindustan Organic Chemicals Ltd.
P.O. Rasayani, Distt. Kolaba,
(Maharashtra).
5. Hindustan Insecticides Ltd.
Hans Bhawan Bahadurshah
Zafar Marg
New Delhi-110 002.
6. Indian Drugs & Pharma. Ltd.
N-12, south Extension-I,
New Delhi-110 049.
7. Rashtriya Chemicals and
Fertilizers Ltd.
Chambur, Bombay-400 074

Ministry of Commerce

Department of Commerce

1. Central Sericultural Research Station, Berhampur-142 101.
2. Central Sericultural Research & Training Institute, 78, Devi Niwas Nizarbad, Mysore-570 010.
3. Central Tasar Research Station, Hehal, Ranchi-834 005.
4. Central Muga & Eri Research Station, Titabar-785 632.
5. Central Coffee Research Instt. Chickmaglore, Mysore.
6. Rubber Research Instt. of India, Rubber Board, Kottayam-9 Kerala.
7. UPASI Tea Research Station, P.O. Cinchona-642 106.
8. Regional Sericultural Research Station, Central Silk Board, Assam-785 632.

Department of Textiles

1. Ahmedabad Textile Industry's Research Association, Polytechnic P.O. Ahmedabad-380 015.
2. The Bombay Textile Research Association, L.B. Shastri Marg, Ghatkopar West, Bombay-400 086.
3. Indian Jute Industry's Research Association, 17, Taratola Road, Calcutta-700 053.
4. Institute of Handicrafts Technology, Bombay.
5. Man Made Textiles Research Association, Near Microwave Tower, Ring Road, Surat-395 002.
6. North India Textiles Research Association, P. Box No. 123, Ghaziabad-201 001.
7. The Silk and Art Silk Mills Research Association, Dr. Annie Besant Road, Worli, Bombay-400 025.
8. The South India Textile Research Association, Coimbatore Aerodrome P.O. Coimbatore-641 004.
9. Wool Research Association Church Gate Chambers, 7th Floor, 5, New Marine Lines, Churchgate, Bombay-400 020.
10. Indian Institute of Handloom Technology, Bombay.

Ministry of Communications

1. Hindustan Teleprinters Ltd. Guindy, Madras-600 032.
2. Indian Telephone Industries Ltd., 16, Museum Road, Bangalore-560 001.
3. Overseas Communication Services, Videsh Sanchar Bhavan, NIG Road, Fort, Bombay-400 001.
4. Telecommunication Research Centre, Khurshid Lal Bhavan, Janpath, New Delhi-110 001.

Ministry of Defence

Department of Defence

1. Institute of Aviation Medicine,
Indian Air Force,
P.O. Vimanpura,
Bangalore-560 017.

Department of Defence Production

1. Bharat Dynamics Ltd.,
10-3-310, Masab Tank,
Hyderabad-500 028.
2. Bharat Earth Movers Ltd.,
J.C. Road,
Bangalore-560 002.
3. Bharat Electronics Ltd.
29, Race Course Road,
Bangalore-560 001.

4. Garden Reach Shipbuilders &
Engineers, 43/46,
Garden Reach,
Calcutta-700 024.
5. Goa Shipyard Ltd.
Vasco-de-Gama, Goa.
6. Hindustan Aeronautics Ltd.,
Post Bag No. 1789,
Bangalore-560 017.
7. Mazagon Dock Ltd.
Dockyard Road,
Mazagoan, Bombay-400 010.
8. Mishra Dhatu Nigam Ltd.,
Kanchan Bagh,
Hyderabad-500 258.
9. Praga Tools Ltd.
6-68/32, Vivaduguda Road,
Secunderabad-500 003.

Ministry of Education and Culture

Department of Culture

1. National Council of Science
Museums,
196, Gursaday Road
Calcutta-700 019.

Ministry of Energy

Department of Petroleum

1. Engineers India Ltd.
PTI Building,
4-Parliament Street,
New Delhi-110 001.
2. R&D Centre,
Indian Oil Corporation,
Sector-13, Faridabad.
3. Indian Petro-Chemical Corpn.
Baroda.
4. The Lubrizol India Ltd.
Delater 9A S., Patkar Marg,
Bombay-400 036.

5. Oil India Ltd.
P.O. Dulijan,
Assam-786 602.
6. Oil and Natural Gas Commission,
Kaulagarh Road,
Dehradun-248 005.

Department of Coal

1. Bharat Coking Coal Ltd.,
Sijua, Dhanbad.
2. Central Mine Planning and
Design Institute,
Darbhanga House
Ranchi-814 001.

3. Neyveli Lignite Corporation Ltd.
P.O. Neyveli,
Tamil Nadu.

Department of Power

1. Central Power Research Institute,
P.O. Box 1242,
Bangalore-560 012.
2. Rural Electrification Corporation,
Nehru Place,
New Delhi-110 049

Ministry of Food & Civil Supplies

Department of Food

1. Indian Grain Storage Institute,
Hapur (U.P.)
2. Modern Bakeries Ltd.
Vasant Vihar
New Delhi-110 057.

3. National Sugar Institute
Kanpur-208 017

Department of Civil Supplies

1. Indian Standards Institute
Manak Bhavan,
9, Bahadur Shah Zafar Marg,
New Delhi-110 001.

Ministry of Health & Family Welfare

1. All India Institute of Hygiene
and Public Health
110, Chittaranjan Avenue,
Calcutta-700 073
2. All India Institute of Physical
Medicine and Rehabilitation,
Clark Road, Mahalaxmi,
Bombay-400 034
3. All India Institute of Medical
Sciences, Ansari Nagar,
New Delhi-110 016.
4. National Institute of Mental
Health and Neuro sciences
Post Bag No. 2979,
Bangalore-560 029.
5. All India Institute of Speech
and Hearing,
Maharaja College Centenary Hall,
Mysore-570 005.
6. BCG Vaccine Laboratory,
Guindy, Mandras-600 032.
7. Cancer Institute,
110, Mount Road,
Madras-600 018.
8. Central Drugs Laboratory,
3, Kyd Street,
Calcutta-700 016.

9. Central Food Laboratory
3, Kyd street
Calcutta-700 016
10. Central Leprosy Teaching
& Research Institute, Post Box 1,
Chingleput-603 001.
11. Central Research Institute,
P.O. Kasauli-173 205.
12. Chittaranjan National Cancer
Research Centre;
37, S.P. Mookherjee Road,
Calcutta-700 026.
13. Department of Serologist &
Chemical Examiner,
3 Kyd Street, Calcutta-700 016.
14. Family Planning Training Research
Institute,
381, Sardar Vallabhai Patel Road,
Bombay-400 004.
15. Haffkine Institute,
Acharya Donde Marg,
Parel Road, Bombay-400 004
16. Hospital for Mental Diseases,
Kanke, Ranchi-830 006
17. Institute of Post Graduate
Medical Education & Research,
244, Lower Circular Road,
Calcutta-700 020.

18. Institute of Research in Indigenous System of Medicine, Approach Road, Jogindernagar (H.P.)
19. International Institute for Population Studies, Deonar, Bombay-400 088.
20. J.N. Institute of Post Graduate Medical Education & Research, Pondicherry-605 006.
21. King's Institute, Guindy, Madras-600 032.
22. National Institute of Communicable Diseases, 22, Sharnath Marg, Delhi-110 054.
23. National Institute of Health and Family Welfare, Near DDA Flats, Munirka, New Delhi-110 067.
24. National Malaria Eradication Programme, 22, Alipore Road, Delhi-110 006.
25. National Tuberculosis Institute, 8, Bellary Road, Bangalore-560 003.
26. Pasteur Institute of Southern India, Conoor-643 103.
27. Post Graduate Institute of Medical Education & Research, Sector-12, Chandigarh-160 001.
28. Rural Health Training Medicine, Najafgarh, New Delhi-110 043.
29. School of tropical Medicine, Chittaranjan Avenue, Calcutta-700 073
30. Vallabh Bhai Patel Chest Institute, Post Bag. No. 2101, New Delhi-110 007

Ministry of Home Affairs

1. Bureau of Police Research & Development, B-1688, Curzon Road barracks, New Delhi-110 001.
2. Central Forensic Science Laboratory, Central Bureau of Investigation, East Block VII, R.K. Puram, New Delhi-110 022.
3. Central Forensic Science Laboratory, 30, Gorachan Road, Calcutta-700 014
4. Central Forensic Science Laboratory, 5-9-201/2, Chirag Ali Lane, Hyderabad.
5. Institute of Criminology & Forensic Science, A-2/19, Safdarjung Enclave, New Delhi-110 029.

Ministry of Industry

(a) Department of Heavy Industry

1. Automotive Research Association of India, Post Box No. 825, Pune-411 104.
2. Bharat Heavy Electricals Ltd., Hindustan Times House, New Delhi-110 001.
3. Bharat Heavy Plates & Vessels Ltd., P.O. Box No. 100, Visakhapatnam-530 012
4. Bharat Pumps & Compressor Ltd., Naini, Allahabad-211 919.
5. Burn Standard Co. Ltd., 10-C, Hungerford Street, Calcutta-700 017
6. Central Machine Tools Institute, Tumkur Road, Bangalore-569 923.
7. Heavy Engineering Corpn. Ltd. Ranchi-834 004.

8. Hindustan Machine Tools Ltd.
36, Cunningham Road,
Bangalore-560 052.
 9. Jeseep & Company Ltd.
63, Netaji Subash Road,
Calcutta-700 001.
 10. Mining & Allied Machinery Corp.,
P.O. Durgapur-700 010.
 11. Richardson & Cruddas Ltd.,
Byculla Iron Works,
Post Bag No. 4503,
Bombay-400 008.
 12. Scooters India Limited,
P.O. Sarojini Nagar,
Lucknow-226 008.
 13. Tannery & Footwear Corporation
of India Ltd.,
13/400, Civil Lines,
Hazari Bungalow, P.B. No. 329,
Kanpur-208 001.
 14. Triveni Structurals Ltd.,
Naini, Allahabad-211 919.
 15. Tungabhadra Steel Products Ltd.,
P.O. Tungbhadra Dam-583 225.
- (b) Department of Industrial Development**
1. Bharat Ophthalmic Glass Ltd.,
Durgapur-700 010.
 2. Cement Research Instt. of India.
M-10, South Extension II,
Ring Road, New Delhi-110 049.
 3. Central Coir Research Institute,
P.O. Kalavoor (Kerala).
 4. Central Pulp and Paper Research
Institute,
Saharanpur.
 5. Hindustan Cables,
Rupnarainpur, Distt. Burdwan,
West Bengal.
 6. Hindustan Paper Corporation,
Vishal Bhavan, 93, Nehru Place,
New Delhi-110 019.
 7. Hindustan Photo Films Mfg.
company Limited.,
Indu Nagar
Ootacamund-643 005
 8. Hindustan Salt Ltd.,
Sambhar Salt Ltd.,
Parijat Bhavan,
Ashok Marg, Jaipur-392 998.
 9. Indian Plywood Industries
Research Institute,
P.O. No. 2273, Tumkur Road,
Bangalore-560 022.
 10. Indian Rubber Manufacturers,
Research Association,
Plot No. 88, Road U.,
Wagle Industrial Estate,
Thana (Maharashtra).
 11. Instrumentation Ltd.,
Kota-324 995.
 12. Khadi & Village Industries
Commission,
3, Irla Road, Ville Parle (W),
Bombay-400 056.
 13. The National Industrial
Development Corporation Ltd.,
Chankaya Bhavan, Vinay Marg,
New Delhi-110 021.
 14. National Institute of Design.
Paldi, Ahmedabad.
 15. National Instruments Ltd.,
I/I, Raja Subodh Chandra Mollick
Road, Calcutta-700 032.
 16. National Newsprint & Paper Mills
Limited,
Nepanaga-450 221.
 17. National Productivity Council,
38, Golf-links,
New Delhi-110 003.
 18. National Small Industries
Corporation Ltd.,
New Okhla Industrial Estate,
New Delhi-110 020.

Ministry of Information and Broadcasting

1. Research Department
All India Radio,
I.P. Estate, Ring Road,
New Delhi-110 002.

Ministry of Irrigation

1. Bhakra Beas Management Board, (PW), Nangal Township.
2. Central Board of Irrigation and Power, Malcha Marg, Chanakya Puri, New Delhi-110 021.
3. Central Water and Power Research Station, Khadakwasla, Pune-411 024
4. Central Soil and Materials Research Station, Near IIT Hostel, Outer Ring Road, Hauz khas, New Delhi-110 016.
5. National Institute of Hydrology Roorkee.

Ministry of Planning

1. Indian Statistical Institute
203, B. T. Road,
Calcutta-700 035

Ministry of Railway

1. Research Designs & Standards Organisation,
Manak Nagar,
Lucknow-226 011.

Ministry of Shipping and Transport

1. Hindustan Shipyard Ltd,
Gandhi Gram,
Vishakhapatnam-530 003.
2. Hydraulic Study Department,
Calcutta Port Commissioner,
20, Garden Reach Road,
Calcutta-700 043.
3. Optical Research Laboratory,
Department of Lighthouses &
Light Ships,
P2/2/C2, Tarabolla Road,
Calcutta-700 024.

Ministry of Steel and Mines

Department of Mines

1. Bharat Aluminium Co. Ltd.
Punj House, 18, Nehru Place
New Delhi-110 019.
2. Bharat Gold Mines Ltd.,
Survarna Bhavan, Oorgam,
P.O. Kolar Gold Fields-563 120.
3. Geological Survey of India,
27, Jawaharlal Nehru Road,
Calcutta-700 013.
4. Hindustan Copper Ltd.,
Indian Copper Complex, Ghastila,
Distt. Singhbhum-832 102.
5. Hindustan Zinc Ltd.
Z.S. Debari, Udaipur,
Rajasthan-313 024.
6. Indian Bureau of Mines,
New Secretariat Building,
Nagpur-440 006.
7. Mineral Exploration Corpn. Ltd.
Seminary Hills, Nagpur-440 006.

Department of Steel

1. Alloy Steel Plant, SAIL,
Durgapur.
2. Bhilai Steel Plant, SAIL,
Bhilai.
3. Bokaro Steel Plant, SAIL,
Bokaro Steel City-827 001.
4. Durgapur Steel Plant, SAIL,
Durgapur.
5. Rourkela Steel Plant, SAIL,
Rourkela City.

- | | |
|---|---|
| 6. R&D Centre for Iron & Steel, SAIL, Ranchi-834 002. 7. MECON, HSL Administration Building, Ranchi-834 002. 8. National Mineral Development Corporation, 6, Box 52453, Samajigudai, Hyderabad. | 9. Salem Steel Plant, Salem. 10. Visvesvaraya Iron & Steel Ltd., Bhadravati-577 301. |
|---|---|

Ministry of Supply and Rehabilitation

Department of Supply

1. National Test House,
Alipore, Calcutta-700 027.

Ministry of Tourism and Civil Aviation

- | | |
|--|--|
| 1. Indian Meteorological Department Mausam Bhavan, Lodhi Road, New Delhi-110 003. 2. Indian Institute of Astrophysics, Bangalore-560 034. 3. Indian Institute of Geomagnetism Colaba, Bombay-400 005. | 4. Indian Institute of Tropical Meteorology. Ramdurg House, University Road, Poona-411 005. 5. Radio Construction & Development Unit, Safdarjung Airport, New Delhi-110 003. 6. Research and Development Directorate, Civil Aviation Department, R.K. Puram, New Delhi-110 022. |
|--|--|

Ministry of Works and Housing

- | | |
|--|--|
| 1. Hindustan Prefab Ltd. Jangpura, New Delhi-110 014. 2. Housing Urban Development Corporation Ltd., 18-A, Jamnagar House, New Delhi-110 001. | 3. National Buildings Organisation 'G' Wing Nirman Bhavan, New Delhi-110 001. 4. Town & Country Planning Organisation, 'E' Block, Delhi Vikas Bhavan, Indraprastha Estate New Delhi-110 002. |
|--|--|

LIST OF S&T INSTITUTIONS UNDER THE STATE GOVERNMENTS

I. ANDHRA PRADESH

1. Andhra Pradesh Agricultural University & its Research Stations.
2. Engineering Research Development, Hyderabad.
3. Oil Technological Research Station, Anantpur.
4. Power Research Station
Andhra Pradesh State Electricity Board, Hyderabad.

II. ASSAM

1. Assam State Electricity Board, Barapani.
2. River Research Station, Chandmari, Gauhati-3.
3. Soil Conservation Research Survey & Design, Gauhati.
4. Assam Agricultural University and its Research Stations

III. BIHAR

1. Bihar State Electricity Board, Patna.
2. Irrigation Research Institute Khagaul.
3. Rajendra Krishi Viswavidyalaya Samastipur.
4. Soil Conservation Research Station, Hazaribagh & Jalalgarh.
5. Training Testing & Research Institute, PWD, Patna.

IV. GUJARAT

1. Agricultural Research Station, Dabhoi.
2. Cotton Research Sub-Station, Targhadia.
3. Dry Farming Research Station, Jam Khambalia.
4. Dry Farming Research Station, Chotila.
5. Engineering Research Station, Baroda.
6. Gujarat Agricultural University & its Research Stations.
7. Gujarat Fisheries Aquatic Sciences Research Institute, Okha-361 350
8. Gujarat Fisheries Aquatic Sciences Research Station, Sikka-361 140.
9. Inland Fisheries Research Centre, Ukai.
10. Irrigation Demonstration Farm, Umralla.
11. Main Irrigation Research Centre, NM College of Agriculture, Navsari.
12. Oilseeds Research Station, Okha.
13. Survey & Research Centre, Deptt. of Fisheries, Okha.
14. Tobacco Research Station, Jamalgaon.

V. HARYANA

1. Haryana Agricultural University
Hissar.
2. Haryana State Electricity Board,
Chandigarh.

VI. HIMACHAL PRADESH

1. Power Research Unit,
Himachal Pradesh State Electricity Board
Mandi.
2. Institute of Research in Indian System
of Medicine, Joginder Nagar.
3. Himachal Pradesh University,
Agricultural Complex and its
Research Stations.

VII. KARNATAKA

1. University of Agricultural Sciences,
Bangalore & its Research Stations.
2. Karnataka Engineering Research
Station, Krishnarajasagar,
Distt. Mandya.
3. Kidwai Memorial Cancer Institute
Bangalore-27.
4. Karnataka Electricity Board,
Bangalore-560 001.

VIII. KERALA

1. Estuarine Research Station,
Ayriamthangu.
2. Fish Breeding Centre,
Azhicode.
3. Fisheries Research Station,
Edathua.
4. Fresh Water Biological Station,
Malmpuzha.
5. Kerala Engineering Research Institute
Peechi.
6. Kerala Agricultural University,
Mannuthy & its Research Stations.

7. Kerala Highway Research Institute,
Trivandrum.

8. Limeshell Research Station,
Kumarkom.

9. Marine Biological Station,
Calicut.

10. Marine Survey Station,
Vizhinjam.

11. Research Testing & Training Centre,
Vellyani.

12. State Port Department,
Trivandrum.

13. Travancore Titanium Products Ltd.,
Trivandrum.

IX. MADHYA PRADESH

1. Agricultural Research Station
Khargone.

2. Central Rice Station
Raipur.

3. Forest Research Institute
Jabalpur.

4. Irrigation Research Directorate,
Bhopal.

5. Maize Breeding Station,
Chhindwara.

6. Public Health Engineering Department,
Bhopal.

7. Regional Agricultural Research Institute,
Gwalior.

8. Sugarcane Research Station,
Sehore.

9. Wool Research Station,
Shivpuri.

X. MAHARASHTRA

1. Zonal Rice Research Station,
Raipur.

2. Agricultural Research Station,
Panvel.

3. Animal Nutrition Research Centre,
Bombay.

4. Cotton Research Station,
Nanded.

5. Haffkine Institute,
Bombay.

6. The Industrial Chemical Lab,
Poona.

7. Konkan Krishi Vidyapeeth,
Ratnagiri & its Research Stations.

8. Koyana Project Research Division,
Alore.

9. Mahatma Phule Krishi Vidyapeeth,
Rahuri, Distt. Ahmedabad.

10. Maharashtra Engineering Research
Institute, Nasik.

11. Punjabrao Krishi Vidyapeeth,
Akola & its Research Stations.

12. School of Applied Research Vishrambag,
Sangli.

XI. ORISSA

1. Applied Research & Intensive Fish
Production & Exploitation in Inland
Waters, Kausalyaganj.

2. Chilka Biological & Technological
Research Station, Balugaon.

3. Control & Research Lab. (R&D),
Bhubaneswar.

4. Hirakud Research Station,
Hirakud.

5. Regional Coconut Research Station,
Sakhigopal.

6. Orissa State Electricity Board,
Bhubneswar.

7. Orissa University of Agriculture &
Technology,
Bhubneswar & its Research Stations.

8. Technological Station,
Balugaon.

9. Water Management & Salinity Research
Scheme, Chakuli.

XII. PUNJAB

1. B&R Research Laboratory,
Chandigarh.

2. Irrigation & Power Research Institute,
Amritsar.

3. Punjab Agricultural University,
Ludhiana.

4. PWD Public Health Branch,
Patiala.

5. Research Laboratory,
Punjab State Electricity Board,
Chandigarh.

XIII. RAJASTHAN

1. Agricultural Research Station,
Durgapur, Jaipur.

2. Agronomical Research Station
Jaipur.

3. Botanical Research Centre,
Jaipur.

4. Cotton Research Centre,
Sriganganagar.

5. Fruit Research Station cum Progney,
Kota.

6. Grape Research Centre,
Jodhpur.

7. Irrigation Research Centre,
Kota.

8. Pathological Research Centre,
Jaipur.

9. Regional Research Station,
Borkhera, Kota.

10. Research Station,
Barore.

11. Research Station,
Hanumangarh.

12. Sugarbeet Research Centre,
Sriganganagar.
13. Directorate of Survey & Research
Ground Water Department,
Jodhpur.
14. Sugarcane Research Centre,
Kota.
15. Sunflower Botanical Research Centre,
Kota.

XIV. TAMIL NADU

1. Agricultural Research Station,
Nanjand.
2. Agricultural Research Station,
Palur.
3. Arignar Anna Memorial Cancer
Institute, Kanchipuram.
4. Banana Research Station,
Aduthurai.
5. Banana Research Station
Vadarvirincipuram.
6. Central Electronics Testing Lab,
Kakkalur.
7. Chemical Testing Laboratory,
Guindy.
8. Coconut Research Station,
Veppankulam-614 906.
9. Highway Research Station
Madras-600 025.
10. Horticultural Research Station,
Periakullam-626 501.
11. Institute of Hydraulics & Hydrology,
Poondi-606 023.
12. Kalagane Karunanidhi Agricultural
Research Institute, Vayalogam.
13. Kallare & Burliar Fruit Station,
Mettupalam.
14. King Institute of Preventive Medicine,
Guindy, Madras.

15. Mechanical & Metallurgical Lab.,
Guindy, Madras.
16. Multi Crop Experimental Station,
Nanjand-643 004.
17. Pomological Station,
Coonoor.
18. Poultry Research Station,
Teynempet.
19. Regional Agricultural Research Station,
Aduthurai
20. Regional Research Station,
Paiyur-635 112.
21. Regional Testing Laboratory
Madurai.
22. Regional Agricultural Research Station
Kovilpathi.
23. Regional Agricultural Research Station
Tindivanam.
24. Rice Research Station,
Tirur.
25. Sheep Breeding Station
Sandynallah-643 237.
26. Soil Mechanics & Research Division,
Chepauk.
27. Sheep Breeding Research Station,
Sandynallah-643 237.
28. Sago Research Laboratory,
Salem-636 001.
29. Sugarcane Breeding Institute
Coimbatore-641 007.
30. Tamil Nadu Forensic Science & Chemical
Laboratory, Madras-600 004.
31. Tamil Nadu Electricity Board,
Madras.
32. Paddy Experimental Station,
Ambassamadram.

XV. TRIPURA

1. Tripura Power Research Centre,
Agartala-799 001.

XVI. UTTAR PRADESH

1. Agricultural Flood Research Station
Bahraich & Gograhat.
2. Allahabad Agricultural Institute,
Allahabad.
3. Government Fruit Research Station,
Basti.
4. Government Hill Fruit Research
Station, Chaubatia.
5. Government Horticultural Research
Institute, Saharanpur.
6. Irrigation Research Institute,
Roorkee.
7. Regional Agricultural Research
Stations, Bareilly & Hardoi.
8. Sugarcane Research Station,
Saharanpur.
9. U.P. Institute of Agricultural
Science, Kanpur.
10. U.P. PWD Research Institute,
Lucknow.
11. U.P. State Observatory,
Nainital.

XVII. WEST BENGAL

1. All India Coordinated Rice
Improvement Project, Kalimpong.
2. Banana Research Station,
Chinsurah.
3. Central Rice Research Zonal
Sub-Station, Kalimpong.
4. Central Testing Lab,
West Bengal State Electricity Board,
Calcutta.
5. Horticultural Research Sub-Station
for Cataritic Tract, Taldangra.

6. Horticultural Research Sub-Station
for Temperate Fruits, Kalimpong.
7. Horticultural Sub-Station for
Sub-Tropical Fruits, Kalimpong.
8. Improvement of Hill Paddy Scheme,
Kalimpong.
9. Institute of Child Health,
Calcutta.
10. Mango Research Station,
Malda.
11. Nucleus Vegitable Seed Farm,
Borjora.
12. Oilseeds Research Station,
Chinsurah.
13. Ramie Research Station,
Mohitnagar.
14. Research Testing & Training Centre on
Improved Agriculture Implements,
Burdwan.
15. Rice Research Station, Chinsurah.
16. River Research Institute
Calcutta.
17. Soil Conservation Research Station,
Midnapore.
18. State Agriculture Research Station,
Calcutta.
19. State Horticultural Research Institute,
Krishnanagar.
20. Sugarcane Research Station,
Bethuadhari.
21. Vegetable Research Station,
Sukna.
22. Vegetable Research Station,
Kalimpong.
23. Wheat Research Station,
Kalyani.

LIST OF UNIVERSITIES/INSTITUTIONS
DEEMED TO BE UNIVERSITIES AND INSTITUTIONS
OF NATIONAL IMPORTANCE

- | | |
|---|---|
| 1. Agra University Agra-208 004 | 17. Bhavnagar University Bhavnagar-364 002 |
| 2. Aligarh Muslim University Aligarh-202 001. | 18. Bharatidasan University Tiruchirapalli |
| 3. Allahabad University Allahabad-211 002. | 19. Bhopal University Bhopal |
| 4. Amravati University Amravati (Maharashtra) | 20. Bharatiyar University Coimbatore-641 041 |
| 5. Andhra University Waltair, Vishakhapatnam-530 003. | 21. Bidhan Chandra Krishi Vishwavidyalaya, Haringhata Mohanpur, Dt. Nadia-741 246 |
| 6. Andhra Pradesh Agricultural University, Rajendra Nagar, Hyderabad-500 030. | 22. Bihar University Muzaffarpur |
| 7. Andhra Pradesh Open University 6-3-345, Somajiguda, Hyderabad-500 004 | 23. Birsa Agricultural University Kanke, Ranchi-834 006 |
| 8. Anna University Guindy, Madras-600 025 | 24. Bombay University Bombay-400 032 |
| 9. Annamalai University Annamalai Nagar-608 101 | 25. Burdwan University Burdwan-713 104 |
| 10. Assam Agricultural University Jorhat-785 013 | 26. Bundelkhand University Jhansi-284 003 |
| 11. Avadh University Faizabad-224 001 | 27. Calcutta University Calcutta-700 073 |
| 12. Awadesh Pratap Singh University Rewa-486 003 | 28. Calicut University Calicut-673 635 |
| 13. Banaras Hindu University Varanasi-221 005 | 29. Chandra Sekhar Azad University of Agriculture and Technology Kanpur-206 002 |
| 14. Bangalore University Bangalore-560 056 | 30. Cochin University Cochin-682 301 |
| 15. Berhampur University Berhampur-760 007 | 31. Delhi University, Delhi-110 007 |
| 16. Bhagalpur University Bhagalpur-364 002 | 32. Devi Ahilya Vishwavidyalaya Indore-452001 |

33. Dibrugarh University
Dibrugarh-786 004
34. Dr. Hari Singh Gour Vishwavidyalaya
Sagar-470 003
35. Gandhiji University
Kottayam, Kerala
36. Garhwal University
Srinagar (Garhwal)
37. Gauhati University
Gauhati-781 014
38. G.B. Pant University of Agri. &
Tech., Pant Nagar, Nainital-263 145
39. Gorakhpur University
Gorakhpur-273 001
40. Gujarat University
Ahmedabad-380 009
41. Gujarat Agricultural University
Sardar Krishinagar,
Dantiwada-385 506
Banas Kantha (Gujarat)
42. Gujarat Ayurveda University
Jamnagar (Gujarat)
43. Gulbarga University
Gulbarga (Karnataka)
44. Guru Ghasidas University
Bilaspur
Madhya Pradesh
45. Guru Nanak Dev University
Amritsar
46. Haryana Agricultural University
Hissar-125 004
47. Himachal Pradesh University
Simla-171 005
48. Himachal Pradesh Krishi Viswavidyalaya,
Palampur-176 062
49. Hyderabad University
Hyderabad-500 001
50. Indira Kala Sangeet Vishwavidyalaya
Khairagarh
Madhya Pradesh
51. Jadavpur University
Calcutta-700 032
52. Jammu University
Jammu-180 001
53. Jawaharlal Nehru University
New Mehrauli Road,
New Delhi-110 067
54. Jawaharlal Nehru Krishi Vishwavidyala,
Jabalpur-482 004
55. Jawaharlal Nehru Technological
University, Hyderabad-500 028
56. Jiwaji University
Gwalior-474 002
57. Jodhpur University
Jodhpur-342 003
58. Kakatiya University
Warangal-506 009
59. Kalyani University
Kalyani-741 235
60. Kanpur University
Kanpur
61. Kameshwar Singh Darbhanga
Sanskrit University
Darbhanga
62. karnatak University
Dharwar-580 033
63. Kashi Vidyapith
Varanasi-221 002
64. Kashmir University
Srinagar-190 006
65. Kerala University
Trivandrum-695 001
66. Kerala Agricultural University
Vellanikkara, Trichur-680 651

67. Konkan Krishi Vidyapith
Dapoli, Ratnagiri-415712
68. Kumaon University
Nainital-263 001
69. Kurukshetra University
Kurukshetra-132 119
70. L.N. Mithila University
Darbhanga
71. Lucknow University
Lucknow-226 007
72. Madras University
Madras-600 005
73. Madurai Kamaraj University
Madurai-625 021
74. Magadh University
Bodhgaya, Bihar-824 234
75. M.S. University of Baroda
Baroda-390 002
76. Maharishi Dayanand University
Rohtak-124 001
77. Mahatma Phule Krishi Vidyapith
Rahuri, Distt-Ahmednagar
78. Mangalore University
Light House Hill,
Mangalore-575 003
79. Manipur University,
Canchipur, Imphal-795 003
80. Meerut University
Meerut
81. Marathwada Agricultural University
Parbhani-431 402
82. Mysore University
Mysore-570 005
83. Marathwada University
Aurangabad-431 004
84. Nagarjuna University
Guntur-622 516
85. Nagpur University
Nagpur
86. Narendra Deo University
of Agri. & Tech., Faizabad-224 001
87. North Bengal University
Rajaram Mohanpur,
Darjeeling-734 430
88. North Eastern Hill University
Lower Lachumiere,
Shillong-793 001
89. Orissa University of Agri &
Tech., Bhubaneswar-751 003
90. Osmania University
Hyderabad 500 007
91. Punjab University
Chandigarh-160 014
92. Patna University
Patna-800 005
93. Poona University
Poona-411 007
94. Punjab Agricultural University
Ludhiana
95. Punjabi University
Patiala
96. Punjabrao Krishi Vidyapith,
Akola-444 104
97. Rabindra Bharati
Calcutta-700 050
98. Rajasthan University
Jaipur-302 004
99. Rajendra Agri. University,
Pusa, Samastipur-848 125
100. Ranchi University
Ranchi
101. Rani Durgavati Vishwavidyalaya
jabalpur-482 001

102. Ravi Shankar University
Raipur-492 002
103. Rohilkhand University
Bareilly-243 001
104. Roorkee University
Roorkee-247 672
105. Sambalpur University
Jyoti Vihar, Burla
Distt. Sambalpur-768 017
106. Sampurnanand Sanskrit
Vishwavidyalaya,
Varanasi
107. Sardar Patel University
Vallabh Vidyanagar,
Via-Anand-388 120
108. Saurashtra University
Rajkot-360 005
109. Sher-e-Kashmir University of
Agricultural Sciences and
Technology, Srinagar-198 001
110. Shivaji University
Kolhapur-416 004
111. Shrimati Nathibai Damodar
Thakersey Women's University
Bombay-400 020
112. South Gujarat University
Surat-395 007
113. Sri jagannath Sanskrit
vishwavidyalaya, Puri
114. Sri Krishna Deva Raya University
Anantpur.
115. Sri Venkateswara University
Tirupati-517 502
116. Smt. Padmavathy Mahila
Vishwavidyalaya, Tirupathy (AP)
117. Sukhadia Vishwavidyalaya
Udaipur-313 001
118. Tamil University, Thanjavur
Tamil Nadu
119. Tamil Nadu Agricultural
University, Coimbatore-641 003
120. University of Agricultural sciences
Gandhi Krishi Vignana Kendra
Bangalore-560 024
121. Utkal University
Vani Vihar, Bhubaneswar-751 004
122. Vidyasagar University
Midnapore, Rash Behari Avenue
Calcutta-700 026
123. Vikram University
Ujjain-456 010
124. Viswa Bharati
Shantiniketan-731 235 (West Bengal)

INSTITUTIONS DEEMED TO BE UNIVERSITIES

1. Banasthali Vidyapith
P.O. Banasthali Vidyapith,
Rajasthan
2. Birla Institute of Technology &
Science, Pilani-333 031
3. Central Institute of English &
Foreign Languages
Hyderabad-500 007
4. Dayalbagh Educational Institute
Agra-282 005
5. Gandhigram Rural Institute
Gandhigram, Dt. Madurai-624 302
6. Gujarat Vidyapeeth
Ahmedabad-380 014
7. Gurukul Kangri Vishwavidyalaya
Hardwar
8. Indian Agricultural Research
Institute, Pusa Institute,
New Delhi-110012
9. Indian Institute of Science
Bangalore-560012
10. Indian School of Mines
Dhanbad-826 004
11. Indian Veterinary Research Instt.
Izatnagar, Uttar Pradesh
12. Jamia Millia Islamia
New Delhi-110 025
13. School of Planning and
Architecture, New Delhi-110 002
14. Sri Satya Sai Institute of Higher
Learning, Prasanti Nilayan,
Anantpur-515 134
15. Tata Institute of Social Sciences
Sion Trombay Road, Deonar,
Bombay-400 088.

INSTITUTIONS OF NATIONAL IMPORTANCE

1. All India Institute of Medical Sciences, Ansari Nagar,
New Delhi-110 029
2. Dakshina Bharat Hindi Prachar Sabha
P.B. No. 68, Hyderabad-500 004
3. Indian Institute of Technology
Powai, Bombay-400 076
4. Indian Institute of Technology
Hauz Khas, New Delhi-110 016
5. Indian Institute of Technology
Agricultural Gardens
Kanpur-208 016
6. Indian Institute of Technology
Kharagpur,
Dt. Midnapore-721 302
7. Indian Institute of Technology
Madras-600 036
8. Indian Statistical Institute,
203, Barackpore,
Trunk Road,
Calcutta-700 035
9. Postgraduate Institute of Medical
Education & Research, Sector-12
Chandigarh-160 012

LIST OF PRIVATE INDUSTRIES RECOGNISED BY THE DEPARTMENT OF SCIENCE &
TECHNOLOGY (AS IN DECEMBER, 1983)

1. Aceto Chemicals Ltd.
22, Barbourne Road,
Calcutta-700 001
2. Acharya Chemicals,
B-2/11, Jawahar Darshan,
Manpade Road, Dombivali East
Thane, Pin Code No. 421 201
3. Addisons Paints & Chemicals Ltd.
Huzur Gardens, Sembiam,
Madras-600 011
4. Advani-Oerlikon Ltd.,
Ador House, 6, K. Dubash Marg,
G.P.O. Box 1546, Bombay-400 023.
5. Auroelectronics,
A 2 Thattanchavadi Industrial
Estate, Pondicherry-605 009.
6. The Ahmedabad Advance Mills Ltd.,
Metals and Special Alloy Steels
Division, Bombay House, 24 Horni
Modi Street, Fort, Bombay-400 023.
7. The Ahmedabad Mfg. & Calico
Printing Co. Ltd.,
Calico Chemicals Plastics & Fibre
Division, Outside Jamalpur Gate,
Ahmedabad-380 022.
8. The Ahmedabad Mfg. and Calico
Printing Co. Ltd.,
(Calico Polyester Fibre Division)
Outside Jamalpur Gate, P.Box No. 12,
Ahmedabad-380 022.
9. The Ahmedabad Mfg. & Calico
Printing Co. Ltd.,
Textiles Division, P. Box No. 12,
Outside Jamalpur Gate,
Ahmedabad-380 022.
10. Ahuja Radios,
3778, Netaji Subash Marg,
New Delhi-110 002.
11. Ahura Chemical Products Pvt. Ltd.,
82, Mahakali Road, Andheri (East),
Bombay-400 093.
12. Ajay Metachem Pvt. Ltd.,
784, Deccan Gymkhana,
Opp. Kamla Nehru Park,
Poona-411 004
13. A.K.G. Electronics Industries,
4/2, Middleton Street,
Calcutta-700 071.
14. Albright, Morarji and Pandit Ltd.
Raj Mahal, 3rd Floor,
84, Veer Nariman Road,
Bombay-400 020
15. Alembic Chemical Works Co. Ltd.,
Alembic Road, Baroda-390 003.
16. Alembic Glass Industries Ltd.
Alembic Road, Baroda-390 003.
17. The Alkali & Chemical Corporation
of India Ltd.,
34, Chowringhee Road, Calcutta-700 071.
18. Alkali Metals Ltd.,
plot B5, Block III, Uppal,
Industrial Development Area,
Hyderabad-500 039
19. Allana Oil Mills,
Allana House,
4-J.A. Allana Road,
Opp. Electric House,
P.B. No. 997,
Colaba, Bombay-400 039.
20. Allgemain Sono Industries
1903, Chandni Chowk,
Delhi-110 006

21. Allied Resins & Chemicals Ltd.
10/1, Elgin Road
Calcutta-700 020
22. Alchemie Research Centre Pvt. Ltd.
Crescent House
19, Walchand Hirachand Marg,
Ballard Estate,
Bombay-400 038.
23. Ambalal Sarabhai Enterprises Ltd.
P.B. No. 231,
Wadi Wadi,
Baroda-390 007
24. Amco Batteries Ltd.
Unity Building
Sri Narasimharaja Square,
Post Bag No. 8,
Bangalore-560 002.
25. Amphetronix Ltd.
Plot No. 105
Bhosari Industrial Area
P.B. No. 1
Poona 411 026.
26. Amrutnjan Ltd.
42/45, Luz Church Road,
Madras - 600 044.
27. Amsar Pvt. Ltd.
2, Hermuz Mansion,
72, Warden Road
Bombay-400 026
28. Andhra Pradesh Dairy Development,
Corporation, Lalapet,
Hyderabad-500 789
29. The Andhra Pradesh Paper,
Mills Ltd.
Rajamundry-353 104,
East Godavari Distt. (A.P.)
30. Andhra Sugars Ltd.
Venkatarayapuram,
Post Box No. 2
Tanuku-534 215 (A.P.)
31. The Andhra Sugars Limited
(Sugar Cane Development Division)
Venkatarayapuram, Post Box No. 2,
Tanuku-534 215 (A.P.)
32. Andrew Yule & Company Ltd.,
Yule House, 8, Clive Road
Calcutta-700 001.
33. M/s Analog & Digital Systems,
No. 4, Loop Lane Race Course Road,
Post Box No. 9962,
Bangalore-560 009.
34. Anil Starch Products Ltd.
Anil Road,
Ahmedabad-380 025.
35. Aniline Dyestuff &
Pharmaceuticals (P) Ltd.,
Mahalaxmi Chambers,
22, Bhulabhai Desai Road,
Bombay-400 026.
36. The Anup Engineering Ltd.
Anil Starchs Premises, Anil Road,
Ahmedabad-380 025
37. Applied Electro-Magnetics,
36-37, New Okhla Industrial Complex,
Phase-I, New Delhi-110 021.
38. Applied Electronics Ltd.,
Aplab House, A/5/A-6,
Wagle Industrial Estate,
Thana, Bombay-400 604.
39. Arlabs Limited, India House,
Room No. 6, 2nd Floor,
Opp. G.P.O., Bombay-400 001
40. The Arvind Mills Ltd.,
Railway Pura Post
Naroda Road, P.B. No. 66,
Ahmedabad-380 002.
41. The Arya Vidya Pharmacy
(Coimbatore) Limited,
366, Trichy Road,
Coimbatore-641 018.
42. Asbestos Cement Limited,
Block D, Shivsagar Estate,
Dr. Annie Besant Road, Worli,
Bombay-400 018
43. Ascu Hickson Limited
7A, Elgin Road, Calcutta-700 020.

44. Ashok Leyland Limited
Ennore, Madras-600 057.
45. Asia Navigation Aids Pvt. Ltd.,
156-157, New Okhla Industrial Complex,
Phase-I, New Delhi-110 020.
46. Asian Chemical Works,
124-26, Shamaldas Gandhi Marg,
(Princess Street)
Bombay-400 002.
47. Asian Paints (India) Ltd.
Nirmal, 5th Floor,
Nariman Point, P.B. No. 1946,
Bombay-400 021.
48. Assam Carbon Products Ltd.,
Karyakshetra, Bamuni Maidan,
Gauhati-781 021 (Assam).
49. The Associated Cement
Companies Ltd.,
Cement House,
121, Maharshi Karve Road,
Bombay-400 020.
50. Associated Instrument Manufacturers
Private Limited
35, Shivaji Marg,
New Delhi-110 015.
51. Atic Industries Ltd.
Post Atul, 396020, Distt. Valsad,
Gujarat State.
52. Atul Glass Industries (P) Ltd.
319, Deshbandhu Gupta Road,
New Delhi-110 055.
53. Atul Products Limited,
P.O. Atul, Distt. Valsad,
Gujarat State.
54. Audco India Limited,
L & T House,
Ballard Estate, P.B. No. 278,
Bombay-400 038.
55. Aurelc Trust,
Prayogashala-Auroville,
Kottakuppam-605 184,
Tamil Nadu.
56. Automatic Electric Ltd.
Rectifier House
570-Naigaum Cross Road,
Wadela, Bombay-400 032.
57. Bajaj Auto Limited,
Bombay-Poona Road,
Akurdi,
Poona-411 035.
58. Bajaj Tempo Limited,
Bombay-Poona Road, Akurdi,
Poona-411 035.
59. Bakelite Hylam Limited,
18, Dr. Moses Road,
Bombay-400 011.
60. Ballarpur Industries Limited
Ballarpur,
Distt. Chandrapur,
Maharashtra.
61. Beltek Electronics Pvt. Ltd.,
A-80, Naraina Industrial Area,
Phase-I, New Delhi-110 028.
62. Balmer Lawrie & Co. Ltd.,
21, Netaji Subhas Road,
Calcutta-700 001.
63. Bansi Lal & Sons,
G.T. Road, Sahibabad,
Gaziabad,
Uttar Pradesh.
64. Baroda Electric Meters Ltd.,
Anand Sojitra Road,
Vithat Udyognagar-388 121,
Vallabh Vidya Nagar,
Gujarat.
65. The Baroda Rayon Corporation Ltd.,
196, Backbay Reclamation,
Hoechst House, Nariman Point,
Bombay-400 021.
66. BASF India Limited
Maybaker House, P.B. No. 19108,
Sudamkalu Ahira Marg,
Bombay-400 025.
67. Bata India Limited
30-Shakespear Sarani,
P.B. No. 9097, Calcutta-700 017.

68. Dr. Beck & Company (India) Ltd.,
61, Advent, 12/A, General Area,
Bhonsale Marg, Bombay-400 021.
69. Bells Controls Limited,
Grosvenor House, 21, Camac Street,
Calcutta-700 016.
70. Belphar Refractories Limited
P.O. Belphar, Distt. Sambalpur,
S.E. Rly., 718 218, Orissa.
71. Bemco Hydraulics Limited
P.O. Udyambag, Belgaum-590 008
Karnataka.
72. The Bengal Immunity Co. Ltd.
Immunity House, 153, Lenin Sarane,
Calcutta-700 013.
73. Best & Crompton Engineering Ltd.,
29, Rajaji Salai, P.B. No. 63 or 285,
Madras-600 001.
74. Bhagwati Sphercast Limited
1, Krishna Society, Ellisbridge
Ahmedabad-380 006.
75. Bharat Bijlee Limited
Electric Mansion,
6th Floor, Appasahab Marathe Marg
Prabhadevi,
P.B. No. 19153, Bombay-400 025
76. Bharat Forge Co. Ltd.,
Mundhwa,
Poona-411 036.
77. Bharat Serums & Vaccines &
Bharat Laboratory
534, Sandhurst Bridge,
Bombay-400 007.
78. The Bharat Vijay Mills Ltd.,
Kalol, Distt. Mehsana,
North Gujarat, Pin-382 721
79. Bhartia Cutler-Hammer Ltd.,
1191, New Delhi House,
27, Barakhamba Road,
New Delhi-110 001.
80. Bharatia Electric Steel Co. Ltd.,
5/2, Russel Steet,
Calcutta-700 071.
81. The Bhartia Agro Industries
Foundation
Uruli-Kanchan, Haveli Taluka,
Distt. Poona-412 207
82. Bhavana Chemicals Limited,
53-57, Laxmi Insurance Building,
Sir P.M. Road,
Bombay-400 001.
83. Bhoruka Engineering
Industries Limited
Whitefield Road
Mahdevpura Post
Bangalore-560 048
84. Bhoruka Steel Limited
Whitefield Road
Mahadevpura Post
Bangalore-560 048
85. Biological E. Limited
18/1 & 3, Azamabad
Hyderabad-500 020
86. Birla Research Institute for
Applied Sciences, Birlagram-456 331
Nagda (MP)
87. Blue Star Limited
Kasturi Building
Tata Road,
Bombay-400 020
88. Bombay Dyeing & Mfg. Co. Ltd.,
Neville House, Ballard Estate,
Bombay-400 038.
89. The Bombay Oil Industries (P) Ltd.
Karmoor House, 281-87
Narsi Natha Street
Bombay-400 009
90. Bombay Paints & Allied Products Ltd.,
Corridor Road, Gavanpada Chembur,
Bombay-400 074.
91. Bommidala Central Research Inst.,
Mangalagiri Road Inst.,
Guntur-522 001 (A.P.).
92. The Boots Co. (India) Ltd.,
17-R. Kamani Marg, P.B. No. 6801,
Bombay-400 038.

93. Bradma of India Limited,
Lakshmi Building, Sir P.M. Road,
Fort, Post Box No. 236, Bombay-400 001.
94. Brakes India Limited,
180, Mount Road
Madras-600 006.
95. The Britannia Industries Ltd.,
Maker Tower 'E' 19th floor,
Cuffe parade,
Bombay-400 005.
96. British Paints (India) Ltd.
32, Chowringhee Road
Calcutta-700 001.
97. British Physical Laboratory
India Limited, BPL Works,
Palghat-678 007. (Kerala)
98. Brooke Bond India Limited
Brooke House
9, Shakespeare Sarani,
Calcutta-700 071.
99. BTX Chemicals Pvt. Ltd.,
CI/8/3, Shed, Nandesari Industrial
Estate, Nandesari, Distt. Baroda
Gujarat.
100. Bush Boake Allen (India) Ltd.,
1-5, Seven Wells Street,
Madras-600 016.
101. Bush India Limited
P.O. Box 4127, Sukh Sagar,
N.S. Patkar Marg
Bombay-400 007
102. Cable Corporation of India Ltd.,
Poonam Chambers, 6th Floor,
North Wing, Shivsagar Estate
Dr. Annie Besant Road, Worli,
Bombay-400 018
103. Cadbury-Fry (India) Pvt. Ltd.,
(Now Hindustan Cocoa Products Ltd.)
Cadbury House, Bulabhai Desai Road
Bombay-400 020.
104. Cadila Laboratories Pvt. Ltd.
244, Ghodasar,
Maninagar,
Ahmedabad-380 008
105. Camphor & Allied Products Ltd.
Jehangir Building
133, Mahatma Gandhi Road
Bombay-400 023
106. Caprihans India Ltd.
Block D, Shivsagar Estate,
Dr. Annie Besant Road, Worli
Bombay-400 018
107. Carbon and Chemicals India Ltd.
39/137-A, Krishnaswamy Cross Road
Cochin-682 011 (Kerala)
108. Carborandum Universal Ltd.
P.B. No. 1677, 28, Rajaji Road
Madras-600 001.
109. Carburettors Ltd.
118, Mount Road
Madras-600 002.
110. Castrol Ltd.
"White House",
91, Walkeshwar Road,
Bombay-400 006
111. Catalyst (India) Pvt. Ltd.
Embassy Centre, 10th Floor,
207, Backbay Reclamation,
Nariman Point, Bombay-400 021.
112. Cawnpore Sugar Works Ltd.
Sutherland House
Kanpur (U.P.)-208001
113. Cellulose Products of India Ltd.
National Chambers
Office Nos. 4 & 5, 2nd Floor
Near Dipali theatre, Ashram Road
Ahmedabad-380 009.
114. Cemindia Company Ltd.,
Apeejay House
Dinshaw Vachha Road
Bombay-400 020
115. Central Distillery and Breweries Ltd.,
20, Netaji Subash Marg,
Darya Ganj, New Delhi-110 002.
116. Central India Machinery
Manufacturing Company Ltd.
Birlanagar
Gwalior (M.P.) 474 004.

117. Central Institute of Road Transport, (Training & Research) Bhosari, Poona-411 026.
118. Centre for Development of Instructional Technology C-11, Community Centre Safdarjung Development Area, New Delhi-110 016
119. The Century Spinning & Mfg. Company Limited, Century Bhavan, Dr. Annie Besant Road, Worli, Bombay-400 025.
120. Chandras 'Chemical Enterprises' P-24, C.I.T. Road, Calcutta-700 014.
121. The Chemical Industrial & Pharmaceuticals Labs. Ltd. 289, Bellasis Road, Bombay Central, Bombay-400 008
122. Chemicals & Fibres of India Ltd. Crescent House 19, Walchand Hirachand Marg Ballard Estate, Bombay-400 038
123. Chemiequip Ltd. 306, Green House, Green Street, Fort, Bombay-400 023
124. Chemosyn Research Centre Plot No. 69, G.I.D.C. Industrial Estate Vapi-396 195.
125. Chloride India Ltd. Exide House, 59, Chowringhee Road, Calcutta-700 020.
126. Chromatography and Instruments Company, 121-122 Makerpura Industrial Estate, Baroda-390 010, (Gujarat)
127. Cibatul Ltd. P.O. Atul-396 020 Distt. Valsad, (W. Rly.) (Gujarat State)
128. Cinecita Pvt. Ltd., Saraswati Mandir, 6, Kennedy Bridge, Bombay-400 007
129. Coats of India Ltd. Transport Depot Road, Calcutta-700 027
130. Colour-Chem Limited Ravindra Annexe Dinshaw Vachha 194, Churchgate Reclamation Bombay-400 020.
131. Cominco Binani Zinc Ltd. Binani Buildings, 38, Strand Road, Calcutta-700 001.
132. Consolidated Coffee Ltd. Pollibetta-571 215 Kodagu, Karnataka State
- 133 Continental Device India Ltd. C-120, Naraina Industrial Area, New Delhi-110 028.
134. Cepham Laboratories (Pvt.) Ltd. M-134, Connaught Circus, New Delhi-110 001.
135. Coromandal Indag Product Pvt. Ltd. 29, Police Commissioner's Office Road, Egmore, Madras-600 008.
136. Coromandal Prodorite (P) Ltd., Tiam House, 20, Rajaji Street, Madras-600 001
137. Crompton Greaves Ltd. 1, Dr. VB Gandhi Marg, Bombay-400 023
138. Cynamid India Ltd., Nyloc House 254-D2, Dr. Annie Besant Road, P.O. Box No. 9109 Bombay-400 025.
139. D & H Secheron Electrodes Pvt. Ltd. 44/46, Industrial Estate, Kila Maidan, Post Bag No. 3, Indore-452 006

140. Dai-Ichi Karkaria Pvt. Ltd.,
Liberty Building,
New Marine Line
Sir Vithaldas Thackersey Marg
Bombay-400 020
141. Dalmia Institute of Scientific
and Industrial Research,
Rajgangpur, Distt. Sundergarh,
Orissa-770 017
142. The Dandeli Ferro Alloys Pvt. Ltd.
Sambava Chambers, 6th Floor
20, Sir Phiroze Lal Mehta Road
Bombay-400 001
143. Danfoss (India) Ltd.
707-706, Suryakiran
19, Kasturba Gandhi Marg,
New Delhi-110 001
144. Darbari Industries,
24, Mahatma Gandhi Marg
Allahabad-211 001
145. Dass Hitachi Pvt. Ltd.,
21-A, Janpath
New Delhi-110 001
146. Daurala Sugar Works
Daurala, Distt. Meerut.
(U.P)
147. Deccan Poultry Farm,
261, S.V. Road, Bandra
Bombay-400 050
148. Deepak Nitrite Ltd.
9/10, Kunj, society, Alkapuri,
Baroda-390 005.
149. Delhi Cloth & General Mills
Bara Hindu Rao, Delhi-110 006.
150. Development Consultants Pvt. Ltd.
24-D, Park Street,
Calcutta-700 016
151. Devidayal Electronics & Wires Ltd.
(Formerly Devidayal Cable Industries Ltd.)
Gupta Mills Estate,
Darukhana Reay Road,
Bombay-400 010
152. Devidayal (Sales) Pvt. Ltd.
Post Box No. 6219,
Tulsi Ram Gupta Mills Estate
Reay Road, Bombay-400 010
153. Dey's Medical Stores (Mfg.) Ltd.
6/D, Lindsay Street
Calcutta-700 016
154. The Dharamsi Morarji Chemicals
Company Limited, Regd. Office
Prospect Chambers, 317/21,
Bombay-400 001
155. Digital Electronics Ltd.
202, Owners Industrial Estate,
Pitamber Lane, Mahim,
Bombay-400 016
156. Digital Systems International
46/8, Gautam Nagar,
Race Course Road
Baroda-390 007
157. Dinesh Rubber Industries
(Division of Rustom Mills &
Industries Ltd.,)
Rustom Mills Compound
Dudeswar Road, Post Box No. 288
Ahmedabad-380 001.
158. DLF Universal Electric Ltd.
Model Town, Faridabad
Haryana-121 103
159. Driescher Panicker Switchgear
Private Ltd.
14/2, Trunk Road
Nazarathpet, Poonamallse
Madras-602 103
160. Ductron Castings Ltd.
B-15, Industrial Development Area
Uppal, Hyderabad-500 039
161. Dunlop India Ltd.
Dunlop House
57B, Mirza Ghalib Street,
Calcutta-700 016
162. Duphar-Interfran Limited
F/5, Shivsagar Estate,
Dr. Annie Besant Road,
Bombay-400 018

103. Dyes & Dispersing Agents Pvt. Ltd.
Central Bank Building
3rd Floor, Block No. 7
Flora Fountain,
Bombay-400 001

164. Dynacraft Machine Co. Ltd.
C.D. Barfiwala Marg,
Andheri West,
Bombay-400 058

165. Dynavision Limited
No. 1, Padmanabha Nagar, Adyar,
Madras-600 020

166. East Anglia Plastics (India) Ltd.
145, Jessore Road
Calcutta-700 009.

167. Eicher Tractors India Ltd.
212, Deen Dyal Upadhaya Marg,
New Delhi-110 001

168. Elcompo Electronic Industries
I-2, Intronics Campus
Thiruvanniyur,
Madras-600 041

169. Electrical Manufacturing Co. Ltd.
136, Jessore Road
Calcutta-700 055.

170. Electromobiles (India) Ltd.
Webb's Complex, 26, MG Road
Bangalore-560 001.

171. Electronic & Engineering Co.,
EEC House, Dalia Estate,
Veera Desai Road, Andheri (West)
P.B. No. 17356, Bombay-400 058

172. Electronic Development Laboratory
6/3, Kirti Nagar Industrial Area,
New Delhi-110 015

173. E.M. Electronix Pvt. Ltd.
158, 3rd Main Industrial Town
Rajaji Nagar, Bangalore-560 004

174. Electronic Research Pvt. Ltd.
17th K.m. Old Madras Road,
P.B. No. 5, Bangalore-560 049

175. Electronics & Business
Machines Pvt. Ltd., II-7,
Intronics Campus, Thiruvanniyur,
Madras-600 041

176. Electronics Consortium Pvt. Ltd.
5A/1, 2&3, Ansari Road,
Daryaganj, New Delhi-110 002.

177. Electronics Corporation of India Ltd.,
Industrial Development
Area, Cherapalli, Hyderabad-62

178. Electronics Limited
Atma Ram House, (7th Floor)
1-Tolstoy Marg,
New Delhi-110 001.

179. Electronics Research & Development
Centre, Keltron House, Vellayambalam,
Trivandrum-695 001

180. Electronic Systems Punjab Ltd.
A-27, Phase VII, S.A.S. Nagar,
Distt. Ropar, (Punjab)

181. Electrosteel Castings Ltd.
Stephen House, 4, B.B.D. Bagh (East),
Calcutta-700 001.

182. Elektrameric Systems Pvt. Ltd.
Elektra House
691/IA, Poona-Satara Road
Poona-411 037

183. Elico Private Limited
D-17, Industrial Estate,
Sanathnagar,
Hyderabad-500 018

184. Ellora Steels Limited
E/26/27, Chikathana,
Industrial Area,
Aurangabad-431 201

185. Emco Electronics,
9, Swadesh Mills Compound,
Behind Prasad Chambers,
Near Roxy Cinema, Opera House
Bombay-400 004

186. E. Merck (India) Pvt. Ltd.,
Shiv Sagar Estate 'A'
P.O. Box No. 16554
Dr. Annie Besant Road, Worli
Bombay-400 018

187. Encardio-Rite Electronics (P) Ltd.,
Avanti, Faizabad Road
Lucknow-226 007.
188. The English Electronic Co. of
India Ltd., D-2, Gillander House
Netaji Subash Road,
Calcutta-700 001
189. Ennore Foundries Limited
Ennore,
Madras-600 067
190. Ericsson India Limited
15, Community Centre, East of Kailash,
New Delhi-110 024
191. Escorts Limited,
Tractors & Engineering Division
H-2, Connaught Circus,
New Delhi-110 001
192. Eskay Fine Chemicals
Mehta Mahal, 15, Mathew Road
Opera House
Bombay-400 004.
193. Essen Deinki,
368, Industrial Area,
Chandigarh-160 002.
194. Essen Engineering Co. (P) Ltd.,
182/63, Industrial Area,
Chandigarh-160 002.
195. Ethnor Limited
30, Forjett Street, Bombay-400 036.
196. EWAC Alloy Limited
L&T House, Narottam Morarji Marg,
Ballard Estate, Bombay-400 038
197. Excel Industries Limited
184-87, Swami Vivekanand Road,
Post Box No. 7474, Jogeshwari,
Bombay-400 102.
198. Exomet Limited
401, Kakad Chambers
132, Dr. Annie Besant Road, Worli,
Bombay-400 018
199. Experto Industrial
Engravers Pvt. Ltd., Plot No. 19/4,
Hadapsar Industrial Estate,
Pune - 411 013.
200. The Fairdeal Corporation (P) Ltd.,
66, Lakshmi Building,
Sir P.M. Road, Fort,
Bombay - 400 011.
201. Fedders Lloyd Corporation P. Ltd.,
Punj House, M-13,
Connaught Circus,
New Delhi - 110 001.
202. Ferro Alloys Corporation Limited,
Shreeram Bhawan,
Tumser - 441 912,
Maharashtra.
203. Fertiplant Engineering Co. P. Ltd.,
188, Lake Road, Bhandup,
Bombay - 400 078.
204. Fibreglass Pilkington Limited,
o, Wallace Street, Fort,
Bombay - 400 001.
205. FIE Research Institute,
Ward No. 9, Industrial Estate,
Ichalkaranji - 416 115,
Maharashtra.
206. Flour & Food Ltd.,
10-11, Yeshwant Nivas Road,
Indore - 452 003.
207. Formica India Division,
The Bombay Burmah Trdg. Corp'n. Ltd.,
9, Wallace Street,
Bombay - 400 001.
208. Ferrodie Limited,
Roxy Chambers,
New Queen's Road,
Bombay - 400 004.
209. Fort Gloster Industries Ltd.,
(Cable Divn.), 21, Strand Road,
Calcutta - 700 001.
210. The Fort William Co. Ltd.,
14, Netaji Subhas Road,
Calcutta - 700 001.
211. Fouress Engineering (India) P.Ltd.,
Mahalaxmi Chambers,
27, Bhulabhai Desai Road,
Bombay - 400 026.

212. Franco-Indian
Pharmaceuticals Pvt. Ltd.,
20, Dr. E. Moses Road,
Bombay - 400 011.
213. Fuel Instruments &
Engineering Pvt. Ltd.,
Old Block No. 1, Old Industrial
Estate, Ichalkaranji - 416 115.
(Distt. Kolhapur) M.S.
214. Fusegear Electric,
18, Janakiram Colony,
Arumbakkam,
Madras - 600 029.
215. Gajra Gears Pvt. Ltd.,
Elve Chambers,
Green Street, Fort,
Bombay - 400 023.
216. Galada Continuous Casting Ltd.,
12-14, 194 Tarnaka,
Hyderabad - 500 017.
217. Garg Associates Pvt. Ltd.,
5, Nai Basti,
Gaziabad (U.P.) - 201 001.
218. Garware Paints Limited,
Rustom Building,
29, Veer Nariman Road, P.B. No. 663,
Bombay - 400 023.
219. Garware Platics &
Polyster (P) Ltd., 50-A,
Swami Nityanand Marg, Vileparle
East, Bombay - 400 057.
220. Geep Industrial Syndicate Ltd.,
28, South Road,
Allahabad - 211 001.
221. Gemmological Institute of India,
29/30 Gurukul Chambers,
187-189, Mumbadevi Road,
Bombay - 400 002.
222. Genelec Limited,
Hindco Works, Subhash Road,
Jageshwari East,
Bombay - 400 060.
223. General Foods Research Centre,
Mangliagaon,
Indore (M.P.)
224. Genesis India,
407, Eros Apartments,
56, Nehru Place,
New Delhi - 110 019.
225. G.G. Dandekar Machine Works Ltd.
Dandekarwadi, Bhiwandi,
Distt. Thana,
Maharashtra - 421 302.
226. Gharda Chemicals Pvt. Ltd.
48, Hill Road, Bandra,
Bombay - 400 050.
227. The Godavari Sugar Mills Ltd.
Fazalbhoy Building.
Mahatma Gandhi Road, Fort,
Bombay - 400 007.
228. Godfrey Phillips India Ltd.
Chakala Andheri,
Bombay - 400 099.
229. Godrej Soaps Ltd.,
Pirojasa Nagar,
Eastern Express Highway, Vikhroli,
Bombay - 400 079.
230. Gokak Patel Volkart Ltd,
Gokak Mills Div.
Forbes Building,
Charanjit Rai Marg,
Post Box No. 79.
Bombay - 400 001.
231. Golden Tobacco Co. Ltd.,
Tobacco House, Vile Parle,
Bombay - 400 056.
232. Goodlass Nerolac Paints Ltd.,
Post Box 16322.
Ganpatrao Kadam Marg,
Lower Parel, Bombay - 400 013.
233. Gramophone Co. of India Ltd.,
5, Old Court House Street,
Calcutta - 700 001.
234. Graphite India Ltd.,
14, Netaji Subhash Road,
Calcutta - 700 001.
235. Grauer & Weil (India) Ltd.,
Sukh Sagar, S/ Patkar Marg,
Chowpatty,
Bombay - 400 007.

236. Greaves Foseco Ltd.,
Jolly Bhavan No. 2.,
1st Floor, New Marine Lines,
Bombay - 400 020.
237. Grindwell Norton Ltd.,
Army & Navy Building,
148, Mahatma Gandhi Road,
Bombay - 400 023.
238. Guest Keen Williams Ltd.,
3A Shakespeare Sarani,
Calcutta - 700 071.
239. Gufic Pvt. Ltd.
Subhash Road - A,
Vile Parle (East),
Bombay - 400 057.
240. The Guindy Machine
Tools Private Ltd.
Pallikaranai, P.O.,
Madras - 601 302.
241. Gujarat Communication &
Electronics Ltd.,
Express Building, 2nd Floor,
R.C. Dutta Road,
Baroda - 390 005.
242. Gujarat Machinery Mfg. Ltd.
Vithan Udyognagar,
Karamsad - 388 325. (Gujarat).
243. Gujarat State Fertilizer Co. Ltd.
P.O. Fertilizernagar,
Distt. Baroda (Gujarat).
244. Gujchem Distillers India Ltd.,
National Chambers, 2nd Floor,
Office No. 6,7 & 8,
Near Dipali Theatre, Ashram Rd.
Ahmedabad - 380 009.
245. Gupta Perfumes (Pvt) Ltd.
1-7,8,9, D.S.I.D.C.
Industrial Complex,
New Rohtak Road, (Nangloi),
Delhi - 110 041.
246. The Gurdit Institute Pvt Ltd.,
"Hill View", 'Attikolla,
Dharwad - 580 007.
Karnataka State.
247. Haffkine Bio-pharmaceutical
Corporation Ltd.,
Acharya Donde Marg, Parel,
Bombay - 400 012.
248. Haffkine Institute for Training
Research & Testing,
Acharya Donde Marg, Parel,
Bombay - 400 012.
249. Harbans Lal Malhotra & Sons Ltd.
P-12, New C.I.T. Road,
Calcutta - 700 073.
250. Hardcastle & Waud Mfg. Co. Ltd.,
Brabourne Stadium,
87, Veer Nariman Road,
Bombay - 400 020.
251. Hedge & Golay Ltd.,
"Shreeshyla" Manakapura Road,
Bangalore - 560 062.
252. Helios Antennas & Electronics,
234, Auvai Shanmugam Road,
Gopalapuram, Madras - 600 086.
253. Herdillia Chemicals Ltd.,
Air India Building,
Nariman Point,
Bombay - 400 021.
254. H. Guru Instruments (P) Ltd.,
10-B, Ho-Chi-Minh Sarani,
Calcutta - 700 071.
255. Hi-Beam Electronics (P) Ltd.,
No. 10, 1st Main Road,
Gandhi Nagar, Adyar,
Madras - 600 020.
256. Hico Products Ltd.,
Mogal Lane, P.B. No. 6467.
Mahim, Bombay - 400 016.
257. Hind High Vacuum Co. (P) Ltd.
Site No. 17,
Peenya Industrial Area,
Phase-I, Bangalore - 560 058.
258. Hinditron Computer Systems &
Consultants Pvt. Ltd.,
69/A.L. Jagmohandas Marg,
Maneesha Building,
Bombay - 400 025.

259. Hind Rectifiers Ltd.
Lake Road, Bhandup,
Bombay - 400 078.
260. Hindustan Brown Boveri Ltd.
Brown Boveri House,
264/265, Dr. Annie Besant Rd.
Bombay - 400 025.
261. Hindustan Cables Limited.,
Rupnarainpur, Burdwan District,
West Bengal.
262. Hindustan Dorr-Oliver Ltd.,
Dorr-Oliver House, Chakala,
Andheri (East),
Bombay - 400 093.
263. Hindustan Electro Technology
Private Limited.,
Electronics Estate,
Peenya, Bangalore - 560 058.
264. Hindustan Ferodo Ltd.,
Post Box 0213, Ghatkopar,
Bombay - 400 086.
265. Hindustan Hydraulics.,
G.T. Road,
Suranussi - 144 027.
Jullunder.
266. Hindustan Instruments Ltd.,
808, Sidharth,
96, Nehru Place,
New Delhi - 110 019.
267. Hindustan Lever Ltd.,
Hindustan Lever House,
165-166, Backbay Reclamation,
Bombay - 400 020
268. Hindustan Photo Films Mfg.
Company Ltd.,
"Indu Nagar",
Ootacamund - 643 005 (T.N.)
269. Hindustan Sanitaryware &
Industries Ltd.,
2, Red Cross Place,
Calcutta - 700 001.
270. The Hindustan Spinning and
Weaving Mills Ltd.,
Sir Vithaldas Chambers,
16, Bombay Samachar Marg,
Bombay - 400 023.
271. Hindustan Steel Ltd.,
Research & Dev. Organisation,
P.O. Hinoo,
Ranchi - 834 002. (Bihar).
272. Hickson & Dadajee Ltd.,
Shree Pant Bhavan,
Sandhurst Bridge,
Bombay - 400 007.
273. Hoechst Pharmaceuticals Ltd.,
Hoechst House, Nariman Point,
193, Backbay Reclamation,
Post Box No. 11123,
Bombay - 400 021.
274. The Hukamchand Mills Ltd.,
Shilneth Camp,
Indore - 452 003.
275. The Hyderabad Allwyn Metal Works Ltd.,
Sanatnagar,
Hyderabad - 500 018.
276. Hyderabad Asbestos Cement
Products Limited.,
Sanatnagar,
Hyderabad - 500 018.
277. Hyderabad Batteries Ltd.,
D-31, Industrial Development Area
Jeedimetla.
Hyderabad - 500 854.
278. Ideal Engineers Hyderabad
Private Limited.,
B-14, Co-operative Industrial
Estate, Balanagar P.O.,
Hyderabad - 500 037
279. Ideal Jawa (India) Pvt. Ltd.,
Mysore - 570 002. (South India).
280. IDL Chemicals Ltd.,
Sanatnagar, "I.E." P.O.,
Post Bag No. 1,
Hyderabad - 500 018.
281. Indchem Electronics Ltd.,
Windson, 105, Dr. Radha Krishan
Salai, Madras - 600 004.
282. India Carbon Limited.,
Temple Chambers,
6, Old Post Office Street,
Calcutta - 700 001.

283. Indian Aluminium Co. Ltd.,
1, Middleton Street,
Calcutta - 700 071.
284. India Navigation Company,
A-103, Mayapuri Industrial Area,
Phase II, Rewari Line,
New Delhi - 110 064.
285. The Indian Cable Co. Ltd.,
9, Hare Street,
Calcutta - 700 001.
286. Indian Drugs & Pharma. Ltd.,
Dundhera Industrial Complex,
Gurgaon - 122 001 (Haryana).
287. Indian Drugs & Pharma. Ltd.,
P.O. Balanagar Township,
Hyderabad - 500 037.
288. Indian Explosives Ltd.,
34, Chowringhee Road,
Calcutta - 700 071.
289. Indian Dyestuff Industries Ltd.,
Mafatlal Centre, Nariman Point,
Bombay - 400 021.
290. The Indian Hume Pipe Co. Ltd.,
Construction House,
Walchand Hirachand Marg,
Ballard Estate, Bombay - 400 038.
291. Indian Organic Chemicals Ltd.,
New Excelsior Building,
6th Floor, Wallace Street,
Bombay - 400 001.
292. Indian Oxygen Ltd.,
Oxygen House. P-34,
Taratala Road,
Calcutta - 700 088.
293. Indian Plastics & Chemicals
Private Limited,
Opposite Railway Station, Dandeli,
North Kannada District,
Karnataka State.
294. Indian Plastics Limited,
Poisar Bridge, Kandivli,
Bombay - 400 067.
295. Indian Vegetable Products Ltd.,
Forbes Building,
Charanjit Rai Marg,
Fort, Bombay - 400 001.
296. The Indian Yeast Co. Ltd.,
4, Bankshall Street,
Post Box No. 70,
Calcutta - 700 001.
297. Indian Pistons Limited.,
Hazur Gardens, Sembiam,
Madras 600 001.
298. Indian Tobacco Company Ltd.,
Virginia House, 37, Chowringhee,
Calcutta - 700 071.
299. Indo Borolina Industries Pvt Ltd.,
Victoria Building,
Syed Abdullah Bravli Rd. Fort.
Bombay - 400 001.
300. The Indo-Burma Petroleum Co. Ltd.
Engineering Division,
Sewari (East),
Bombay - 400 015.
301. Indofil Chemicals Ltd.,
Nirlon House, Dr. Annie Besant Rd.
Worli, Bombay - 400 025.
302. Indo National Limited.,
609, Mount Rd. Laxmi Bhavan,
IVth Floor, Madras - 600 006.
303. Indo-Pharma Pharmaceuticals
Works Ltd.,
Mehta Mahal, 3rd Floor,
15, Methew Rd.
P.B. No. 3571,
Bombay - 400 004.
304. Industrial & Agricultural
Engg. Co. (Bombay) Ltd.,
196, Lal Bahadur Shastri Marg,
Bhandup. Bombay - 400 078.
305. Industrial Perfumes Ltd.,
Hay Bunder Road,
Tank Road P.O., Sewari,
Bombay - 400 033.

306. The Industrial Plastics Corp.
Private Limited.
Rajabhadur Mansion,
2nd Floor. 14, Hamam Street,
Fort, Bombay - 400 001.
307. Industrial Research Corporation,
No. 19, 12th Main Road.
Bangalore - 560 055.
308. Inga Laboratories Pvt. Ltd.
"Inga House," Mahakali Road,
Andheri, Bombay - 400 093.
309. Institute of Typographical
Research,
54, Budwar Peth, Ganpati Chowk,
Laxmi Road,
Pune - 411 002.
310. Instrumentation Engineers
Private Limited,
B-4, Cooperative Industrial
Estate, Balanagar,
Hyderabad - 500 037.
311. International Combustion
(India) Ltd.,
101, Park Street,
Calcutta - 700 016.
312. International Computers Indian
Manufacture Limited.,
Mile Post No. 4
Ahmednagar Road, Pune - 411 014.
313. International Instruments Ltd.,
140, Hosur Road,
Bangalore - 560 034.
Karnataka State.
314. IMECO Ultrasonics,
19-C, Shalimar Industrial Estate,
Matunga, Bombay - 400 019.
315. Ion Exchange (Indian) Ltd.,
Tiecicon House, P.B. No. 6275,
Dr. L. Moscs Road,
Bombay - 400 011.
316. IPCA Laboratories Pvt. Ltd.,
48, Kandivli Industrial Estate,
Bombay - 400 067.
317. Indian Plywood Mfg. Co. Ltd.,
9 Wallace Street,
Bombay - 400 001.
318. Jagatjit Industries Ltd.,
54, Mahatma Gandhi Road,
Lajpat Nagar III,
New Delhi - 110 024.
319. Jagson Pal Pharma. Pvt. Ltd.,
(Unit; Jagson Pal Co.),
1520, Bhagirath Palace,
Chandni Chowk, Delhi - 110 006.
320. Jai-Hind Industries Ltd.,
Akurdi, Pune-411 035.
321. Jain Plastics & Chemicals
Private Limited.,
152, Polan Peth,
P.O. Box 20,
Jalgaon - 425 001.
322. Jaisum & Butchison,
11, Zackria Avenue,
Madras - 600 008.
323. Jaya Hind Sciaky Ltd.,
D-1 Block, Plot No. 18/1,
Chinchwad, Poona - 410 019.
324. Jayalakshmi Cotton and Oil
Products Pvt. Ltd.
Perecherla - 522 005.
Guntur-Macherla Road,
Distt., Guntur (A.P.)
325. Jayant Industrial and Scientific
Research,
13, Sitafalwadi,
Dr. Mascrenhas Road, Mazgaon,
Bombay - 400 010.
326. Jaycee Chemicals Pvt. Ltd.,
Suite-2, 10th Floor,
Embassy Centre, Nariman Point,
Bombay - 400 021.
327. The Jay Engineering Works Ltd.
23, Kasturba Gandhi Marg,
New Delhi - 110 001.
328. J.B.A. Printing Inks Ltd.,
Lal Bahadur Shastri Marg.
Bhandup, Bombay - 400 078.

329. Jindal Aluminium Ltd.,
16th K.M. Tumkur Road.
Bangalore - 560 073.
330. J.K. Synthetics Ltd.,
Kamla Tower,
Kanpur.
331. J.M.A. Industrial Ltd.,
29, Community Centre,
East of Kailash,
New Delhi-110 065.
332. Johnson & Johnson Ltd.,
30, Frojett Street,
Bombay - 400 036.
333. Jupiter Radios,
C-46, Okhla Industrial Area,
Phase - II, New Delhi - 110 020.
334. Jyoti Ceramic Industries,
Plot No. C-21,
Nasik Ind. Coop. Estate,
Satpur, Nasik - 7.
335. Jyoti Limited.
P.O. Chemicals Industries,
Industrial Area,
Baroda - 390 006.
336. The Kadevi Engg. Co. (P) Ltd.
A-1, A2, Electronic Complex,
Kesaiguda,
Hyderabad-500 762.
337. Kamani Engineering Corpn. Ltd.
Kamani Chambers,
32, Ramjibhai Kamani Marg,
Ballard Estate,
Bombay - 400 030.
338. Kankariya Chemical Industris Ltd.
Opp. Electricity House,
Relief Road,
Ahmedabad - 380 001.
339. Karnataka Filters (P) Ltd.,
104, Koramangala Industrial
Layout, Hosur Road,
Bangalore - 560 034.
340. Karnataka Soaps & Detergents Ltd.
Multistoreyed Buildings,
(Ground Floor), Vidhana Veedi,
Post Bag No. 5398,
Bangalore - 560 001.
341. Kay Laboratories Pvt Ltd.,
F-20, "EVEREST", Tardeo Road,
Bombay - 400 034.
342. The K.C.P. Limited.
183, Anna Salai,
Madras - 600 006.
343. KEGG FARMS.
8th Floor, Erore Apartments,
56, Nehru Place, New Delhi - 19.
344. Kelleys Engineering Works,
24-B/6, Industrial Area, N.I.T.,
Faridabad - 121 001.
(Haryana).
345. Kelvinator of India Ltd.,
Atma Ram House,
1, Tolstoy Marg,
New Delhi - 110 001.
346. The Kerala Minerals and Metals
Limited.
Post Box No. 30
Quilon - 891 001.
347. Kerala State Drugs & Pharma-
ceuticals Ltd.,
P.B. No. 30, Allepey - 688 522.
Kerala State.
348. Khandelwal Mfg. Corpn. Pvt. Ltd.
Khandelwal Estate.
Bhandup, Bombay - 400 078.
349. K.G. Khosla Compressors Ltd.
1, Deshbandhu Gupta Road.
New Delhi - 110 055.
350. Kinetic Engineering Ltd.
D-1 Block,
Plot No. 18/2, Chinchwad,
Poona - 411 019.

351. Kirloskar Brothers Ltd.
Udyog Bhavan, Tilak Road,
Poona - 411 002.
352. Kirloskar Cummins Ltd.,
Kothrud, Poona - 411 029.
353. Kirloskar Electric Co. Ltd.
Industrial Suburb, Rajajinagar,
Bangalore - 560 010.
354. Kirloskar Oil Engines Ltd.,
Laxmanrao Kirloskar Road,
Poona - 411 003.
355. Kirloskar Pneumatic Co. Ltd.,
Hadapsar Industrial Estate,
Pune - 411 013.
356. The Kolhapur Sugar Mills Ltd.,
Kasaba Bavada,
Kolhapur - 416 006.
Maharashtra.
357. Kothari Centre of Gastroenterology
(Unit of Kothari Scientific
and Research Institute)
7/2, Diamond Harbour Road,
Calcutta - 700 027.
358. Kothari Phytochemicals,
(International),
(Div. of Kothari Plantations &
Industries Ltd.),
8, India Exchange Place,
Calcutta - 700 001.
359. Krishna Rock Drills Pvt. Ltd.
107, Park Lane,
Secundrabad - 500 003.
360. Kumardhubi Fireclay & Silica
Works Ltd.,
Chartered Bank Building,
4, Netaji Subhash Road,
Calcutta - 700 001.
361. Kusum Products Ltd.
9, Biplabi Trailakya Maharaj,
Sarani, (Brabourne Road),
Calcutta - 700 001.
362. Lakme Ltd.,
Bombay House,
24, Homi Modi Street,
Bombay - 400 023.
363. Lakshmi Machine Works Ltd.,
Perianaickenpalayam SRKV Post,
Coimbatore - 641 020.
364. Larson & Toubro Ltd.,
L & T House, Ballard Estate,
P.O. Box 278,
Bombay - 400 038.
365. Laxsons Engg. & Electronics
Private Limited.,
Laxsons House,
AA2 Cama Municipal Industrial
Estate, Goregaon (East),
Bombay - 400 063.
366. Lectrotek,
33, Parvati Industrial Estate,
Pune - 9.
367. L.G. Balakrishnan & Bros. Ltd.,
India House, Trichy Road,
Coimbatore - 641 018.
368. Liberty Chemical Works.
Mogra Road, Off Nagardas Road,
Andheri East, P.B. No. 8701,
Bombay - 400 069.
369. Liberty Oil Mills Pvt. Ltd.,
302, Dalamal House,
206, Nariman Point,
Bombay - 400 021.
370. Litex Electricals Pvt. Ltd.,
9/6, Dhiraj,
23, Duncan Causeway Road,
Bombay - 400 022.
371. Lohia Machines Limited.
C. 3 & 4 Panki Industrial Estate,
Kanpur - 203 020.
372. Lona Industries Pvt. Ltd.,
Alta Bhavan,
532, Senapati Bapat Marg, Dadar,
Bombay - 400 028.

373. Lucas-TVS Ltd.,
180, Anna Salai,
Madras - 600 006.
374. Lupin Laboratories,
159, C.S.T. Road, Kaline,
Santacruz (East), Bombay - 98.
375. Machinery Mfg. Corpn. Ltd.
Gateway Building, Apollo Bunder,
Bombay - 400 001.
376. Machine Tool Aids & Reconditioning
18, Rechnocrats Industrial Estate,
Balanagar, Hyderabad-500 037.
377. Madhav Capacitors Pvt. Ltd.
Bharat Coal Compound,
Bail Bazar, Kurla,
Bombay - 400 070.
378. Madras Industrial Linings Ltd.,
25, Gilchrist Avenue,
Harrington Road,
Madras - 600 031.
379. Madras Rubber Factory Ltd.,
Dhun Building,
827, Anna Salai,
Madras - 600 002.
380. The Mafatlal Fine Spg. & Mfg.
Company Limited.
(Textile Division),
Mafatlal Centre, Nariman Point,
P.B. No. 70037,
Bombay - 400 021.
381. Maharashtra Electronic
Corporation Limited (MELTRON),
Plot No. 214, Backbay Reclamation,
13th Floor, Raheja Centre,
Nariman Point, Bombay - 400 021.
382. Maharashtra Hybrid Seeds Co. Ltd.,
Rustomjee Cottage,
Sardar Patel Road,
Jalna - 431 203,
Maharashtra.
383. Mahindra Engineering & Chemical
Products Ltd., Gateway Building,
Apollo Bunder, Bombay - 400 039.
384. Mahindra & Mahindra Ltd.,
(International Tractor Division),
Gateway Building, Apollo Bunder,
Bombay - 400 039.
385. Mahindra & Mahindra Ltd.
(Automotive Div.), Gateway Building,
Apollo Bunder,
Bombay - 400 039.
386. Mahindra Sintered Products Ltd.,
Gateway Building, Apollo Bunder,
Bombay - 400 039.
387. Mahindra Ugine Steel Co. Ltd.,
Bakhtwar Nariman Point,
Bombay - 400 021.
388. Maize Products,
(Prop: Sayaji Mills Ltd.)
P.O. Kathwada-Maize Products,
Ahmedabad - 382 430.
389. The Maneklal Harilal
Spg. & Mfg. Co. Ltd., Saraspur,
Ahmedabad - 380 018.
390. Man-Made Textile Research
Association, Resham Bhawan,
Lal Darwaja, Surat - 395 003.
391. Mansingka Industries Limited,
Maker Bhavan No. 1,
1 Sir Vithaldas Thakersey Marg,
Bombay - 400 020.
392. Marathe Engineering Industries,
Industries Estate, Plot No. 7 & 8,
Miraj - 416 410.
393. Marathe Research Foundation,
Mane Building, Shri Govindraoji,
Marathe Road, Miraj - 416 410
Maharashtra.
394. Mawana Sugar Works,
Mawana, (Distt. Meerut)
Uttar Pradesh.

395. Medley Laboratories Pvt. Ltd.,
'Medley House', Plot No. D2,
16th Road, MIDC Area,
Andheri (East), Bombay - 400 093.
396. Metal Box India Ltd.,
Barlow House, 59-C,
Chowringhee Road,
Calcutta - 700 020.
397. The Metal Power Company Ltd.,
Chairman A, Shanmuga Nadar Road,
Sivakasi - 626 123.
Tamil Nadu.
398. Metazinc Private Limited,
Sunayana, 9, S.V. Road,
Vile Parle (West),
Bombay - 400 056.
399. Metroark Private Limited,
Chatterjee International Centre,
20th Floor, 33A, J.L. Nehru Road,
Calcutta - 700 071.
400. The Mettur Chemical & Industrial
Corporation Limited,
Mettur Dam R.S. - 636 402,
Salem District Karnataka.
401. Micro Electronics,
No. 28, Ramaswamy Street,
T. Nagar, Madras - 690 017.
402. Micro Machanical Works,
L.B. Shastri Marg, Vikhroli,
Bombay - 400 083.
403. Micromatic Machines (Now
Parishudh Sadhan Yantra P.Ltd.,)
Meerut Road, Gaziabad - 201 003.
404. Miles India Limited,
589, Sayajipura Ajwa Road,
Baroda - 390 019, (Gujrat).
405. Mine Safety Appliances Ltd.,
P-25, Transport Deptt Road,
Calcutta - 700 088.
406. Mitronics Corporation,
10, Vakil Industrial Estate,
Valbhat Road, Bombay - 400 063.
407. Modipon Limited,
Modinagar - 201 204. (U.P.)
408. Modi Rubber Limited,
Modinagar - 201 204. (U.P.)
409. Modison Metal Refiners,
33, Nariman Bhawan, 227,
Nariman Point, Bombay - 400 021.
410. Molins of India Limited,
A-7, Industrial Estate,
Mohali - 160 051.
411. Monotype India Limited,
Regent House 12,
Government Place East,
Calcutta - 700 069.
412. Morani Chemicals Pvt. Ltd.,
Carrimjee Building, 3rd Floor,
111, M.G. Road, Fort,
Bombay - 400 023.
413. Morris Electronics Ltd.,
Bhonsari Industrial Estate,
Poona - 411 026.
414. Motilal Pesticides (India) Pvt. Ltd.,
305, Manusha, 57, Nehru Place,
New Delhi - 110 019.
415. Motor Industries Co. Ltd.,
Hosur Road, Adugodi,
Bangalore - 560 030.
416. The Motwane Mfg. Co. Pvt. Ltd.,
127, Mahatma Gandhi Road,
P.O. Box 1312, Bombay - 400 023.
417. Motwane Pvt. Ltd.,
127, Mahatma Gandhi Road,
P. Box No. 1312,
Bombay - 400 023.
418. M.P. Electricity Board,
(Research Development Cell)
(Generation), Rampur, P.O.B. No. 34,
Jabalpur. Madhya Pradesh.
419. Mukand Iron & Steel Works Ltd.,
Lal Bahadur Shastri Marg,
Kurla, Bombay - 400 070.
420. Murphy India Limited,
'Nirmal', 241-242, Backbay
Reclamation, Nariman Point,
Bombay - 400 021.

421. The Mysore Kirloskar Limited,
P.O. Yantrapur,
Harihar - 577 602,
Karnataka State.
422. Nagarjuna Steels Limited,
Nagarjuna Hills, Punjagutta,
Hyderabad - 500 004.
423. Nandi Chemicals Pvt. Ltd.,
Near Fort, Belgaum - 590 002.
Karnataka State.
424. Narne Tulaman Manufacturing Pvt. Ltd.,
Balanagar Township,
Hyderabad - 500 037.
425. Punjab Research Institute,
Industrial Area,
Rajpura (Punjab) - 140 401.
426. National Dairy Development Board,
P.O. No.40, Anand - 388 001,
Gujarat.
427. The National Fireworks Factory,
74/1, Police Station Road,
Sivakasi - 626 123 Tamil Nadu.
428. National Instruments Ltd.,
1/1, Raja Subodh Chandra Mullick
Road, Calcutta - 700 032.
429. National Organic Chemical
Industries Ltd.,
Mafatlal Centre, Nariman Point,
Bombay - 400 021.
430. National Peroxide Limited,
Naville House, J.N. Heredia Marg,
Ballard Estate,
Bombay - 400 038.
431. The National Radio & Electronics
Company Limited,
Mahakali Road, Chakala,
Andheri (East), Bombay - 400 093.
432. The National Rayon Corporation Ltd.,
P.B. No. 11118, Eros Theatre Building,
1, Jamshedji Tata Road,
Bombay - 400 001.
433. National Textile Corpn.,
(Gujarat) Limited,
1791, Ashram Road,
Ahmedabad - 380 009.
434. Navdeep Chemicals Pvt. Ltd.,
166, Bora Bazar Street, Fort,
Bombay - 400 001.
435. Navin Flourine Industries,
Chemicals Division of The Mafatlal
Fine Spg. & Mfg., Co. Ltd.,
Mafatlal Centre, Nariman Point,
Bombay - 400 021.
436. Navsynth Chemicals,
Sarite Darshan, Opp. Jai-Hind Press,
Ashram Road,
Ahmedabad - 380 009.
437. New Ambadi Estate Pvt. Ltd.,
Tiam House, 28, Rajaji Road,
Madras - 600 001.
438. New Standard Engineering Co. Ltd.,
NSE Estate, Goregaon East,
Bombay - 400 063.
439. NGEF Limited, Old Madras Road,
P.M. No. 3876,
P.O. Byappanahalli,
Bangalore - 560 038.
440. Nippon Electronics (India) Ltd.,
Bull Temple Road, Post Bag No. 1905,
Bangalore - 560 019.
441. Nirlon Synthetic Fibres &
Chemicals Ltd., Nirlon House,
254-B, Dr. Annie Besant Road,
Worli, Bombay - 400 025.
442. Nitson Laboratories,
Plot No. A/319, Road No. 22,
Wagle Industrial Estate,
Thana - 480 604.
443. Nivedita Chemicals Pvt. Ltd.,
A-14, M.I.D.C, Andheri (East),
Bombay - 400 093.
444. Nuchem Plastics Limited,
20/6, Mathura Road,
Faridabad - 121 006.

445. O/E/N India Limited,
P.B. No. 2, Vyttila,
Chochin - 682 019.
446. Organon (India) Limited,
38, Chowringhee Road,
Calcutta - 700 071.
447. The Oriental Science Apparatus,
Workshop, Jawaharlal Nehru Marg,
Ambala Cantt - 133 001 (Haryana).
448. Orient Paper Mills Amlai,
(Prop. Orient Paper & Industries Ltd.,
9/1, R.N. Mukerjee Road,
Calcutta - 700 001.
449. Orissa Cement Limited,
Rajganjpur,
Orissa State.
450. Orissa Industries Limited,
P.O. Borang,
Cuttack, Orissa.
451. Otis Elevator Co. (India) Ltd.,
Gateway Building, Apollo Bunder,
Bombay - 400 039.
452. Paharpur Cooling Towers Pvt. Ltd.,
1 B, Judges Court Road,
Calcutta - 700 027.
453. Paramount Pollution Control Corp.,
76, Vishwas Colony, Alkapuri,
Baroda - 390 005.
454. Parkhe Research Institute,
1183, Shivajinagar,
Ferrgusson College Road,
Pune - 411 005.
455. Partap Steel Rolling Mills,
(Amritsar) Private Limited,
Pratap Estates, Chheharata - 5.
456. Partap Steel Rolling Mills
Private Limited, A-4, Kalindi,
New Delhi - 110 065.
457. Patel Filters Limited,
5/1/2, G.I.D.C. Industrial Estate,
Vatva, Ahmedabad - 382 445.
458. Peico Electronics & Electricals Ltd.,
7, Justice Chandra Madhab Road,
Calcutta - 700 020.
459. Peico Electronics &
Electricals Ltd.,
7, Justice Chandra Madhab Road,
Calcutta - 700 020.
460. Peico Electronics & Electricals Ltd.,
(R&D Laboratory),
7, Justice Chandra Madhab Road,
Calcutta - 700 020.
461. Pennwalt India Limited,
Signal Hill Avenue, Tank Road,
Sewari, Bombay - 400 033.
462. Perfect Engineering Products Pvt. Ltd.,
Meher House, 15, Cawasji Patel
Street, Bombay - 400 001.
463. Permal Wallance Limited,
Central India Flour Mills Estate,
Post Box No. 38,
Bhopal - 462 008 (M.P.)
464. Pesticides India,
Props: Mewar Oil & General Mills Ltd.,
Post Box No. 20, Udaisagar Road,
Udaipur - 313 001.
465. Petrochemical Engineering
Company Pvt. Ltd.,
303, Jyoti Apartment,
66, Nehru Place,
New Delhi - 110 019.
466. Pfizer Limited,
Express Towers,
Nariman Point,
Bombay - 400 021.
467. Philips Carbon Black Ltd.,
31, Netaji Subhas Road,
Calcutta - 700 001.
468. Photophone Limited,
7, Saki Vihar Road,
Bombay - 400 072.
469. Plastipeel Chemicals & Plastics
(Private) Ltd., Plot No. 20,
N.S. Road, No. 9, J.V.D. Scheme,
Bombay - 400 049.

470. Polychem Limited,
7, Jamshedji Tata Road,
Churchgate Reclamation,
Bombay - 400 020.
471. Polyolefine Industries Limited,
Mafatlal Centre, Nariman Point,
Bombay - 400 021.
472. Polypharm Private Ltd.,
Calcot House, 8, Tamarind Street,
Fort, Bombay - 400 023.
473. Poona Pearls, Poultry Breeding
Farms & Hatcheries, 225/9A,
Hadapsar, Pune - 411 028.
474. Power Systems & Projects Pvt. Ltd.,
(Now BPL Systems & Projects Ltd.,)
System House, Palghat - 678 007.
Kerala.
475. Prabhat Solvent Extraction
Industries Pvt. Ltd.,
Sterling Apartments, 1st Floor,
Jawahar Road, Rajkot - 360 001.
476. Pragati Computers,
P.B. No. 7,
Pondicherry - 605 001.
477. Precision Fasteners Limited,
New India Centre,
17, Cooperage Road,
Bombay 400 039.
478. Precision Tools & Casting Pvt. Ltd.,
Malviya Nagar, Aishbagh,
Lucknow - 226 004.
479. The Premier Automobiles Ltd.,
92/93, Maker Tower 'F' (9th Floor),
Cuffe Parade, Colaba,
Bombay - 400 005.
480. Press Metal Corporation Ltd.,
Andheri Kurla Road,
Bombay - 400 059.
481. Pressure Cookers &
Appliances Ltd., United India
Building, Sir Pherozezshah Mehta
Road, Bombay - 400 001.
- 482.. Prestige Feed Mills,
32, 11-C, New Polasia,
Indore - 451 001.
483. Processor Systems
(India) Pvt. Ltd., "NAVKU",
Azad Road, Kaloor,
Cochin - 682 017.
484. Professional Electronic Products,
P. Box No. 316, Oppt. Old Octroi
Post, Delhi Road,
Meerut - 250 002.
485. P.S. Industries,
53, NP Development Plot,
Industrial Estate Guindy,
Madras - 600 032.
486. Pudmjee Pulp & Paper Mills Ltd.,
Thergaon, Chinchwad,
Poona - 411 033.
487. Pulp & Paper Research Institute,
Jaykaypur - 765 017.
Distt. Korapat, Orissa.
488. Punjab Anand Batteries Limited,
A-9 & 10, Industrial Estate,
S.A.S. Nagar (Mohali) - 160 051,
Punjab (India)
489. Punjab Bio-Medical
Equipments Pvt. Ltd.,
B-99, Phase VIII,
SAS Nagar - 160 051.
490. Punjab Bone Mills
524, New Jawahar Nagar,
Jullundur - 144 001.
491. Punjab Communications Ltd.,
C-30, Phase II, Industrial Focal
Point, SAS Nagar (Mohali),
Punjab - 160 051.
492. Punjab Digital Industrial
Systems Ltd., A-98, Industrial
Focal Point, Phase VIII,
SAS Nagar Mohali - 160 051.
493. Punjab Display Devices Ltd.,
A-27, Phase VII, SAS Nagar,
Chandigarh - 160 051.

494. Punjab Recorders Limited,
B-99, Phase VIII, SAS Nagar,
Mohali - 160 051.
495. Punjab Tractors Ltd.,
Phase IV, SAS Nagar,
Chandigarh - 160 051.
496. Punjab Wireless Systems Ltd.,
B-53, B-55, Phase VI, SAS Nagar,
Chandigarh - 160 051.
497. Purex Laboratories (India) P. Ltd.,
No. 640, IV Main, II Stage,
Indira Nagar,
Bangalore - 560 038.
498. Purolator India Ltd.,
No. 1, Shri Aurobindo Marg,
New Delhi - 110 016.
499. Pyrotech International
185, Bhupaipura,
Udaipur - 313 001.
500. Rainbow Ink & Varnish
Manufacturing Co. Pvt. Ltd.,
133-C, Vakola Santacruz East,
Bombay - 400 055.
501. Rajamane Telectric,
B-3, Ancillary, ITI, Industrial
Estate, Mahadevapura Post,
Bangalore - 560 048.
502. Rajasthan Spinning & Weaving
Mills Ltd., 24, Community Centre,
East of Kailash,
New Delhi - 110 024.
503. Raj Prakash Chemicals Ltd.,
114, Mittal Chambers,
Nariman Point,
Bombay - 400 021.
504. Rallis India Limited,
(Pharmaceutical Division),
21, D.S. Marg,
Bombay - 400 001.
505. Rallis India Ltd., (F & P. Div.),
21, D.S. Marg,
Bombay - 400 001.
506. Ralliwolf Limited,
Ralli House, 21, Raveline Street,
Bombay - 400 001.
507. Rana Sales & Service Pvt. Ltd.,
S.C.O. No. 147, Sector 28-D,
Chandigarh - 160 002.
508. Ranbaxy Laboratories Ltd.,
78, Nehru Place,
New Delhi - 110 019.
509. Rane Brake Lining Limited,
No. 32, Cathedral Road,
Madras - 600 086.
510. Rane (Madras) Limited,
Maithri, 32, Cathedral Road,
Madras - 600 086.
511. Ranutro Pvt. Ltd.,
Unit: T&R Industries,
9/54, Kirti Nagar Industrial Area,
New Delhi - 110 015.
512. Rao Insulating Company Pvt. Ltd.,
Whitefield Post. - 560 066.
Bangalore.
513. Rapsri Engg. Industries Pvt. Ltd.
39 & 40/2 Gowdanapalya,
Subramanyapura Post,
Bangalore - 560 061.
514. Raptakos Brett & Company Ltd.,
47, Dr. Annie Besant Road Worli,
Bombay - 400 025.
515. Rashtriya Chemical & Fertilisers
Limited, Chembur,
Bombay - 400 074.
516. Reckitt & Colman of India Ltd.,
41, Chowringhee Road,
Calcutta - 700 071.
517. Recorders & Medicare Systems
181/5, Industrial Area,
Phase - I,
Chandigarh - 160 002.
518. Reliance Silicones (India) Pvt. Ltd.
304, Embassy Centre,
Nariman Point,
Bombay - 400 021.

519. Reliance Textile Industries Ltd.,
Court House, 4th Floor,
Tilak Marg, Dhobi Talao.
Bombay - 400 002.
520. Rescon Mfg. Co. Pvt. Ltd.,
Moray House, 2nd Floor,
226 S.V. Road, Near Bandra Talkies
Bandra, Bombay - 400 050.
521. Research Instt. for Graphic Arts,
R 16A, Connaught House,
Connaught Place,
New Delhi - 110 001.
522. Resins & Plastics Pvt. Ltd.,
71 & 75, Wing "C", Mittal Tower,
7th Floor, Nariman Point,
Bombay - 400 021.
523. Richardson Hindustan Ltd.,
Tiecicon House,
Dr. E. Moses Road,
Bombay - 400 011.
524. Rinki Industrial Oils Ltd.,
Oppt. Bombay Shopping Centre,
R.C. Dutt Road,
Baroda - 390 007.
525. Roche Products Ltd.,
28, Tardeo Road,
Bombay - 400 034.
526. Rockweld Electrodes India Ltd.
29, Industrial Estate,
Ambattur, Madras - 600 058.
527. Rohit Pulp & Paper Mills Ltd.
Rohit Chambers, Chough Street,
Bombay - 400 001.
528. Rohtas Industries Ltd.,
P.O. Dalmianagar, Distt. Rohtas,
(Bihar).
529. Rolloy Metals Pvt. Ltd.
No. 2, Rehem Mension,
Colabo Couseway,
Bombay - 400 039.
530. Roplas (India) Limited.,
145, Bombay - Poona Road, Pimpri,
Poona - 411 018.
531. Roussel Pharmaceuticals (India)
Limited, D. Shivsagar,
Dr. Annie Basant Road, Worli,
Bombay - 400018.
532. The Rubber Products Pvt. Ltd.,
Plot.C-44, Road No. 28,
Wagle Industrial Estate,
Thane - 400 604.
533. Rubber Reclaim Company of India
Pvt. Ltd., L-62, Connaught Circus,
New Delhi - 110 001.
534. Ruston & Hornsby (India) Ltd.,
1, Dr. V.B. Gandhi Marg,
Bombay - 400 023.
535. Sahyadri Dyestuffs & Chemicals,
(Div. of Mafatlal Industries Ltd)
Asarva Road, Post Box No. 2006.
Ahmedabad - 380 016.
536. Sai Industries,
Plot No. 7, Phase II MIDC,
Marol Industrial Area,
Andheri East, Bombay - 400 093.
537. S.A.J. Engineering Pvt. Ltd.
12, Kaka Halwai Industrial Estate,
Pune-Satara Road,
Pune - 411 009.,
538. Sakthi Sugars Ltd.,
73-A, Race Course Road,
Post Box No. 3775.
Coimbatore - 641 018 (T.N.)
539. Sandoz (India) Ltd.,
Sandoz House,
Dr. Annie Besant Road, Worli,
Bombay - 400 018.
540. Sandvik Asia Ltd.,
Bombay-Poona Road,
Poona - 411 012.
541. Sangeet Research Academy,
1, Netaji Subhash Chandra Bose
Road, Tollygange,
Calcutta - 700 040.
542. Sanghi Chemicals,
39-A, N.S. Patkar Marg,
Bombay - 400 007.

543. Satyadev Chemicals Ltd.,
Post Box 101, Pratapnagar Road,
Baroda - 390 004.
544. Savita Chemicals Pvt. Ltd.,
66/67, Nariman Bhavan, 6th Floor,
Nariman Point, Bombay - 400 021.
545. School of Applied Research,
Vishrambag, Sangli - 416 415,
(Maharashtra)
546. Scientific Instruments (Indore)
Private Limited,
B-14, Industrial Estate,
Pologround, Indore - 452 003.
547. The Scientific Instruments
Company Limited,
6, Tej Bahadur Sapru Road,
Allahabad - 211 001.
548. S.D. Fine Chem. Pvt. Ltd.
7, Indu Chambers,
P.B. No. 3232,
349/53, Samuel Street,
Bombay - 400 003.
549. Sealol Hindustan Ltd.,
223/5B, Hadapsar,
Pune - 411 028.
550. Searle (India) Ltd.,
21, D. Sukhadvala Marg,
P.B. No. 233, Bombay - 400 001.
551. Semiconductor Complex Ltd.,
Phase VIII, S.A.S. Nagar,
Punjab - 160 051.
552. Semiconductors Ltd.,
Ador House, 6, K. Dubash Marg,
Fort, Bombay - 400 023.
553. Seshasayee Industries Ltd.
Vadalpur - 607 303,
South Arcot Distt.
Tamil Nadu.
554. Seshasayee Paper & Boards Ltd.,
Pillipalayam, Cauvery RS PO,
Erode - 638 007, Tamil Nadu.
555. SF India Ltd.,
6, Poonam Building,
5/2 Russel Street,
Calcutta - 700 071.
556. Shalimar Paints Ltd.,
13, Camac Street,
Calcutta - 700 017.
557. Shanti Electric Instrumments,
A-54, Marol Industrial Area,
M.I.D.C. Andheri (East),
Bombay - 400 093.
558. Shaw Wallace & Co. Ltd.,
No. 4, Bankshali Street,
Calcutta - 700 001.
559. Shaw Wallace Gelatines Ltd.,
4, Bankshall Street,
Post Box. No. 70,
Calcutta - 700 001.
560. Sherei Engineering Pvt. Ltd.,
136, Great Western Building,
Nagindas Master Road Extn.,
Fort, P.B. No. 724,
Bombay - 400 023.
561. S.H. Kelkar & Co. Ltd.,
36, Mangaldas Road,
Bombay - 400 002.
562. Shree Synthetics Limited,
Naulakhi Malsi Road,
Ujjain.
563. Shri Ambica Mills Ltd.,
Kankaria,
Ahmedabad - 380 008.
564. Shri Dinesh Mills Ltd.,
Padra Road, P.O. Box No. 65,
Baroda - 390 005.
565. Shriram Fibres Limited,
Gopala 25, Rajindra Place,
New Delhi - 110 008.
566. Shri Ram Institute for Industrial,
Research (A Unit of Shri Ram
Scientific & Industrial Research
Foundation), 19-University Road,
Delhi - 110 007.

567. Shriram Refrigeration Industries Ltd., Post Box. 519, Kasturba Gandhi Marg, Surya Kiran Building, New Delhi - 110 001.
568. Shroffs Technical Services Pvt. Ltd., Excel Estate, S.V. Road, Goregaon West, Bombay - 400 062.
569. Shukla-Manseta Industries Pvt. Ltd., 24-B, Ambala Doshi Street, Fort, Bombay - 400 023.
570. Sietex Control (P) Ltd., 121/1, Neelangarai, Thiruvannamiyur, Madras - 600 041.
571. Sigma Engineers, (Prop: Sigmolon Equipments Pvt. Limited), W-3, "S" Block, Bhosari Industrial Area, Pune - 411 026.
572. Simco Meters Ltd. 09, Munganpakkam, High Road, Madras - 600 034.
573. Sirpur Paper Mills Ltd., Lingapur House, 3-6-237, Himayatnagar Road, Hyderabad - 500 029.
574. The Sirsilk Ltd., "Lingapur House" 3-6-237, Himayatnagar Road, Hyderabad - 500 029.
575. Sivananda Electronics, Deepak Mahal, Lam Road, Deolali - 422 401, (Maharashtra)
576. Small Industries Research Training and Development Organisation, P.P. SIRTDO Mesra, Ranchi (Bihar) - 835 215.
577. Smith Kline & French (India) Ltd. Devenahalli Road, Opp. Old Madras Road, Bangalore - 560 049.
578. Smith Stainstreet Pharma. Ltd. 18, Convent Road, Calcutta - 700 014.
579. Society for the Promotion of Organisations of the Rural Poor, P-20, Green Park Extension, New Delhi - 110 016.
580. Somaiya Organics (India) Ltd., P.O. Somaiya Nagar, Barabanki - 225 123.
581. Sonit Aromatic Chemicals Pvt. Ltd., 257-258, Peenya Industrial Area, Phase IV, Bangalore - 560 058.
582. Sonodyne Electronics Co. Pvt. Ltd. 7, Sourin Roy Road, Calcutta - 700 034.
583. Sonodyne Television Company Private Ltd. 7, Sourin Roy Road, Calcutta - 700 034.
584. The Southern Borax Ltd. 31, Spur Tank Road, South Extension, Chetput, Madras - 600 031.
585. Southern Electronics (Bangalore) Pvt. Ltd., 16-A, Peenya Industrial Area, Phase - I, Peenya, Bangalore - 560 058. Karnataka.
586. Southern Magnetics Pvt. Ltd. 11-3, Dr. Vikram Sarabhai. Instronics Estate, Thiruvannamiyur, Madras - 600 041.
587. Southern Petrochemical Industries Corporation Ltd., 39, Armenian Street, Madras - 600 001.
588. SPACO Carburettors (India) Ltd., Post Box No. 13, Chinchwad, Poona - 411 019.

589. Span Research Centre,
175, New Industrial Estate,
Road. No. 6-F, Udyog Nagar,
Udhana - 394 210. Surat.
590. Special Steels Limited,
Shed No. A/9, Tarapur Industrial
Area, P.O. Boisar,
Distt. Thane - 401 506.
591. Spencer and Company Ltd.,
(Pharmaceutical Division),
769, Anna Salai,
Madras - 600 002.
592. Sponge Iron India Ltd.,
10-5-20/1, Masab Tank,
Hyderabad - 500 028.
593. Standard Clutches & Spares Pvt. Ltd.,
Lake Road, Bhandup,
Bombay-400 078.
594. Standard Alkali-Chemicals Division,
Standard Mills Co. Ltd.,
Mafatlal Centre, Nariman Point,
P.O. Box No. 1051, Bombay - 400 021.
595. Standard Motor Products of
India Ltd., 134, Mount Road,
Post Box. 2210,
Madras - 600 002.
596. Standard Organics Limited,
6-3-348, 'Salopia'
Dwarakapuri Colony,
Hyderabad - 500 004.
597. Star Electronics & Holding Pvt. Ltd.,
Dhanraj Mahal,
Ch. Shivaji Maharaj Marg,
Bombay - 400 039.
598. Star Paper Mills Limited,
27, Biplobi Trailokya,
Maharaj Sarini,
Calcutta - 700 007.
599. Star Industrial & Textile
Enterprises Ltd., Dhanraj Mahal,
Chhatrapati Shivaji Marg,
Bombay - 400 039.
600. The Star Wire (India) Ltd.,
6, Hens Pukar Ist Lane,
Calcutta - 700 007.
601. Steelcast Bhavnagar Pvt. Ltd.,
Ruvapari Road,
Bhavnagar - 364 001. Gujarat.
602. Steelsworth Pvt. Ltd.,
Tinsukia,
Assam.
603. Sudershan Chemical
Industries Limited, 162,
Wellesley Road, Sangam Bridge,
Pune - 411 001..
604. Suhrid Geigy Chem & Pharm. Ltd.,
Shanti Sadan, Mirzapur,
Ahmedabad - 380 001.
605. Sumac International Pvt. Ltd.,
A-61, Talkatora Industrial Estate,
Lucknow - 226 011.
606. Sundaram Industries Ltd.,
TVS Building, West Veli Street,
Madurai - 625 001.
607. Sundaram Clayton Ltd.,
180, Mount Road,
Madras - 600 006.
608. Sundaram Fasteners Ltd.,
180, Mount Road,
Madras - 600 006.
609. Sunil Synchem Limited,
17/18, Old Industrial Area,
Alwar - 301 001. Rajasthan.
610. Super Seals India Pvt. Ltd.,
'Kailash' Kasturba Gandhi Marg,
New Delhi - 110 001.
611. Suvik Electronics Pvt. Ltd.,
Nowroji Vakil Compound,
Shahibag, Ahmedabad - 380 004.
612. Suri & Nayar Limited,
White-field Road, P.B.No. 4802,
Bangalore - 560 048.
613. Swedeshi Polytex Ltd.,
Malhotra Buildings,
F-60, Cannaught Place,
New Delhi - 110 001.

614. Synbiotics Limited,
P.B. No. 129, Wadi Wadi,
Baroda - 390 007.
615. Synpro Industries, (Prop: Synpro
Surface Coating Pvt. Ltd.,
50-51/60-61, Industrial Estate,
Pologround, Indore - 452 003.
616. Synthetics & Chemicals Ltd.,
Oriental House 7, J.T. Road,
Church Gate,
Bombay - 400 020.
617. Synthetics & Polymer Industries,
(Props: Synpol Products Pvt. Ltd.)
G.V.M.S. Audyngic Vashat Ltd.,
Odhav - 382 410, Distt. Ahmedabad.
618. Synthite Industrial Chemicals P. Ltd.,
Synthite Valley, Kadayiruppu,
P.O. Kolenchery - 682 311.
Ernakulam, Distt. Kerala.
619. Systems Dimensions,
241, R Block West of Chord Road,
Rajaji Nagar, Bangalore - 560 010.
620. Systems Research Institute,
17-A, Gultekdi,
Pune - 411 009.
621. Systech Pvt. Ltd.,
Ushashree, 124-C Erandavna,
Near Kamla Nehru Park,
Poona - 411 004.
622. Talbros Automotive Components Ltd.,
13-D, Sagar Apartments,
6, Tilak Marg,
New Delhi - 110 001.
623. Tamilnadu Dadha Pharmaceuticals
Limited, 10 Jeypore Nagar,
Madras - 600 086.
624. Tata Chemicals Limited,
Bombay House, 24, Homi Mody Street,
Bombay - 400 023.
625. Tata Exports Limited,
Leather Division, Block 'A',
Shivsagar Estate,
Dr. Annie Besant Road, Worli,
Bombay - 400 018.
626. The Tata Hydro-Electric Power
Supply Company Limited,
The Andhra Valley Power Supply
Co. Ltd., The Tata Power Co. Ltd.,
Bombay House, 24, Homi Modi Street,
Bombay - 400 023.
627. The Tata Iron & Steel Co. Ltd.,
24, Homi Modi Street, Fort,
Bombay - 400 023.
628. The Tata Oil Mills Co. Ltd.,
24, Homi Modi Street, Fort,
Bombay - 400 023.
629. Tata-Robins-Fraser Ltd.,
11, Station Road, Burma Mines,
Jamshedpur - 831 007.
630. Taylor Instruments Co. (India) Ltd.,
14, Mathura Road, P.O. Amar Nagar,
Faridabad - 121 003.
631. Tech-Invest (India) Ltd.,
BHEL, Industrial Estate,
Hardwar - 249 403.
632. Technofour,
841, Budhwar Peth, Laxmi Road,
Poona - 411 002.
633. Teletube Electronics Pvt Ltd.,
45, Navjivan Vihar,
New Delhi - 110 017.
634. Television & Components Pvt. Ltd.,
Plot No. 57, GIDC Industrial Township,
Naroda, Ahmedabad.
635. Textile & Allied Industries
Research Organisation,
Kala Bhavan Premises,
Baroda - 390 001.
636. Textool Company Limited,
P.O. Ganpathy,
Coimbatore - 641 006.
637. Thermax Pvt. Ltd.,
13 MIDC Industrial Area,
Chinchwad, Poona - 411 019.
638. The Titaghur Paper Mills Co. Ltd.,
95, Park Street,
Calcutta - 700 016.

639. Toshiba Anand Batteries Ltd.,
XXXVI/895, Mahatma Gandhi Road,
P.B. No. 1077, Ernakulam,
Cochin - 682 011. Kerala.
640. Toshniwal Industries Pvt. Ltd.,
Industrial Estate,
Mukhupura,
Ajmer - 305 002.
641. Toshniwal Instruments (Bombay),
198, Jamshedji Tata Road,
Bombay - 400 020.
642. Toshniwal Instruments Madras,
B-16, Industrial Estate, Ambattur,
Madras - 600 058.
643. Toshniwal Instruments Mfg. P. Ltd.,
198, Jamshedji Tata Road,
Bombay - 400 020.
644. Trackparts of India Ltd.,
4, Industrial Area, Govindnagar,
P.O. Udyoganagar,
Kanpur - 208 022.
645. Tractor Engineers Ltd.,
L&T House, Narottam Morarjee Marg,
Ballard Estate, Bombay - 400 038.
646. Tractors India Ltd.,
1, Taratolla Road, Garden Reach,
Calcutta - 700 024.
647. Transpek Industry Pvt. Ltd.,
635, Kalali Road, Atladra,
Baroda Gujarat.
648. The Travancore Electro-Chemical
Industries Limited,
P.O. Chingavanam - 686 531, Kerala.
649. Travancore Titanium Products Ltd.,
Kochuveli,
Trivandrum - 21, Kerala.
650. Trichy Distilleries & Chemicals Ltd.,
Post Box No. 3327, 109, Nungambakkam
High Road, Madras - 600 034.
651. Triveni Sheet Glass Works Ltd.,
1, Kanpur Road,
Allahabad - 211 002.
652. T.S.T. Rajan & Brothers,
Electric Control Equipment Co.,
A-2, Industrial Estate,
Madurai - 625 007.
653. T.T.K. Pharma Private Ltd.,
Old Trunk Road, Pallavaram,
Madras - 620 043.
654. Tube Investments of India Ltd.,
Tiam House, 28, Rajaji Road,
Madras - 600 001.
655. Tulsi Fine Chemical
Industries Pvt. Ltd.,
97-E, Central Block,
Bhosari Industrial Area,
Poona - 411 026.
656. Tunghabhadra Steel Products Ltd.,
Tunghabhadra Dam,
Distt. Bellary - 583 225,
Karnataka.
657. Ultramatix,
Survey 82/1, Plot No. 20,
Opp. Gandhi Training College,
Sahakar Nagar, Parvati,
Poona - 411 009.
658. Unichem Laboratories Ltd.,
Unichem Bhavan, S.V. Road,
Jageshwari (West),
Bombay - 400 102.
659. Uniloids Ltd.,
3-6-524, Himayathnagar,
P.B. No. 1027,
Hyderabad - 500 029.
660. Union Carbide India Ltd.,
1, Middleton Street,
Calcutta - 700 071.
661. Unique Chemicals,
Seth Govindrao Smriti,
83, B&C Dr. Annie Besant Road,
Worli, Bombay - 400 018.
662. Uni-Sankyo Limited,
5-9-24/81 shapurwadi,
Hyderabad - 500 483.

663. United Carbon India Ltd.,
NXM International House,
Babubhai M-chinai Marg,
Bombay - 400 020.
664. United Catalysts India Ltd.,
240, D. Naoroji Road,
Bombay - 400 001.
665. United Phosphorus Pvt. Ltd.,
11, G.I.D.C. Area,
Vapi - 396 195., Gujarat.
666. Unitron Limited.
Himalaya House, 7th Floor,
23, Kasturba Gandhi Marg,
New Delhi - 110 001.
667. Universal Biochemical,
No. 6, Sathya Sayee Nagar,
Madurai - 625 003.
668. Universal Cables Ltd.,
Post Box No. 9,
Satna - 485 001.
669. Universal Dyestuff Industries
Limited., P.O. Sakarda,
Distt. Baroda,
Gujarat State - 391 350.
670. Universal Electrics Ltd.,
9/1 R.N. Mukerjee Road,
Calcutta - 700 001.
671. Universal Ferro & Allied
Chemicals Ltd.,
Liberty Building,
Sir Vithaldas Thackersey Marg,
Bombay - 400 020.
672. U.P. Electronics Corpn. Ltd.,
10, Ashok Marg,
Lucknow - 226 001.
673. U.P. National Mfg. (Pvt) Ltd.,
Ramkatora Road.
Post Box No. 68,
Varanasi - 221 001. (U.P.)
674. Upper India Steel Mfg. & Engg.
Company Private Limited,
Dhandari Industrial Focal Point,
Sherpur Kalan,
Ludhiana - 141 010.
675. U.P. State Electricity Board,
Shakti Bhawan,
14-Ashok Marg,
Lucknow - 226 001.
676. Uptron Powertronics Ltd.
5-55/5-58, Uptron Estate,
Sahibabad, Gaziabad (U.P.)
677. Uptron Shreetronic Ltd.,
46, Rajindernagar Industrial
Estate,
P.O. Mohannagar - 201 007.
Distt. Gaziabad (U.P.)
678. Usha Rectifier Corporation
(India) Private Limited.,
Jeevan Tara,
5, Parliament Street,
New Delhi - 110 001.
679. Usha Scientific Research Instt.
14, Princep Street,
Calcutta - 700 072.
680. Utkal Machinery Limited,
P.O. Kansbahal - 770 034.
Distt. Sundargarh, Orissa.
681. Vankateshwara Research &
Breeding Farm Limited,
13/6, Milestone, Panshet Road,
P.O. Girinagar, Poona - 411 025.
682. Védshala,
Narangpura,
Ahmedabad - 13.
683. Venco Research & Breeding
Farm Limited., 13/6, Milestone,
Pune-Panchet Road,
P.O. Girinagar, Poona - 411 025.
684. Vickers Sperry of India Ltd.,
P.B. No. 8556, Akurli Road,
Kandivili (East),
Bombay - 400 101.
685. Vicon Ltd.
35/5 Langford Road.
Bangalore - 560 025.
686. Vidyut Metallics Ltd.,
Bombay Agra Road,
P.O. Wagle Industrial Estate,
Naupada, Thana - 400 604.

687. Vinod Solvextracts Pvt Ltd.,
IInd Floor, Andhra Bank Bldg.
P.B. No. 151,
Vijayawada - 520001.
688. Vipor Chemicals,
218, G.I.D.C. Ind Estate.
Makarpura,
Baroda - 390 010.
689. Voltas Ltd.,
19, Graham Road,
Ballard Estate,
Bombay - 400 001.
690. Vulcan-level Ltd.,
Mustafa Building,
7A, Sir P.M. Road,
Bombay - 400 001.
691. VV-Deepa Aromatics Pvt. Ltd.,
20, Kasturi Building,
Jamshedji Tata Road,
Church Gate,
Bombay - 400 020.
692. Walchandnagar Industries Ltd.,
(Cooper Group)
Construction House,
Walchand Hirachand Marg,
Ballard Estate,
Bombay - 400 038.
693. Wandleside National Conductors
Limited,
19, J.N. Heredie Marg,
Ballard Estate,
Bombay - 400 038.
694. Warner-Hindustan Ltd.,
Warangal Road, Uppal,
Hyderabad - 500 039.
695. Water & Mineral Exploration
Research & Training Institute,
(A Div. of Water Development
Society). C2 & C5 Industrial
Estate, Moula Ali, Hyderabad-40.
696. Webal Business Machines Ltd.,
225E, Acharya Jagdish Chandra
Bose Marg,
Calcutta - 700 020.
697. Webel Telecommunication
Industries Ltd.,
4 & 5, Canal West Road,
Calcutta - 700 015.
698. Wellman Incandescent India Ltd.,
8, HO-CHI-MINH SARANI,
Calcutta - 700 071.
699. West Bengal Electronics Industry
Development Corporation Ltd.,
225-A Acharya Jagdish Chandra
Bose Rd. Calcutta - 70 020.
700. The West Coast Paper Mills Ltd.
Bangur Nagar, Dandeli - 581 362
North Karana District.
Karnataka.
701. The Western India Plywoods Ltd.
Mill Road, Baliapatam,
Cannanore - 670 010.
Kerala.
702. Westerwork Engineers Ltd.,
5-D, Vulcan Insurance Bldg.
Veer Nariman Rd. Churchgate,
Bombay - 400 020.
703. Weston Electronics Ltd.,
43, Okhla Industrial Estate,
New Delhi - 110 020.
704. Wheels India Ltd.,
180, Mount Road,
Madras - 600 006.
705. Widia (India) Ltd.,
8/9th Mile, Tumkur Road,
P.B. No. 7300
Bangalore - 560 073.
706. Wipro Products Ltd.,
14th Floor, Bakhtawar,
229, Backbay Reclamation,
Bombay - 400 021.
707. Wockhardt Pvt. Ltd.,
Poonam Chambers,
Shivsagar Estate,
Dr. Annie Besant Road,
Worli, Bombay - 400 018.
708. W.S. Insulators of India Ltd.,
Porur,
Madras - 602 104.

709. Wyeth Laboratories Ltd.,
Apeejay House, Dinshaw Vacha Road,
P.O. Box No. 11056,
Bombay - 400 020.

710. XLO India Ltd.
78-B, Dr. Annie Besant Road,
Worli, Bombay - 400 018.

711. Yamuna Digital Electronics
Private Limited.,
8-2-629, Road No. 1,
Banzara Hills.
Hyderabad - 500 034.

712. Yesha Electricals Pvt. Ltd.,
C-2/18, Industrial Estate,
Corwa Road,
Baroda - 390 016.

713. Zenith Electro-Systems Pvt. Ltd.
6, Mittal Chamber,
Nariman Point,
Mama Parmanand Marg,
Bombay - 400 021.

714. Zip Industries Pvt. Ltd.,
118, Roadway, 1st Floor,
Madras - 600 001.

ACKNOWLEDGEMENT CARD

FROM

SUB:- NATIONAL SURVEY OF SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES 1982-83

Dear Madam,

This is to acknowledge the receipt of your letter along with two copies of the questionnaire No. ARR/DST/R&D Stat/83 dated _____ on the above subject. Further correspondence on the subject may be addressed to the officer, whose particulars are given below:-

Name _____

Designation _____

Mailing address _____

SIGNATURES

Telegram: SCIENCTECH
Telephone: 652260
Telex: 31-2096 DST IN

GOVERNMENT OF INDIA
DEPARTMENT OF SCIENCE & TECHNOLOGY
(Vigyan Aur Prodyogiki Vibhag)

Technology Bhavan,
New Mehrauli Road,
New Delhi-110016.

Dr. S. VARADARAJAN
SECRETARY

Dear,

The Department of Science & Technology, Govt of India undertakes National surveys regularly to collect data on the resources devoted to Research & Development (R&D) activities in the country. The data, so collected, are compiled, processed, analysed and brought out in report forms. The latest report for the year 1980-81 can be made available on request. Please write to us for the same.

I am writing to you this letter enclosing two copies of the questionnaire (one copy may be retained for your record) for collecting data on R&D for the year 1982-83 from your Organisation, as we are now engaged in the annual survey for the current year. I presume that the questionnaire is self-explanatory, but all the same, you may have difficulty in filling the questionnaire. If you have any such difficulty, please write or telephone or personally call on the following officer whose contact address is given below:-

Dr. (Mrs.) A.R. Rajeswari,
Principal Scientific Officer,
Deptt. of Science & Technology,
Government of India,
Technology Bhawan,
New Mehrauli Road,
New Delhi:-110016.
Telephone: 662639/662260

The timely bringing out of a report based on R&D data is entirely dependent on the early receipt of the filled in questionnaire from you and as you know that such reports would go a long way to assist the Science & Technology planning in the country. Therefore, may I call upon you to send the filled in Questionnaire within a month of the receipt of the same or even earlier!

Please fill and send the acknowledgement card to us as soon as you receive the questionnaires.

I now look forward for your cooperation in making the survey a success.

With regards.

Yours sincerely

Encls:

1. Two Questionnaires
2. Acknowledgement Card

(S. VARADARAJAN)

Telegram: SCIENCTECH

Telephone: 652260

Telex: 31-2096 DST IN

GOVERNMENT OF INDIA
DEPARTMENT OF SCIENCE & TECHNOLOGY
(Vigyan Aur Prodyogiki Vibhag)

Technology Bhavan,
New Mehrauli Road,
New Delhi-110016.

Dr. S. VARADARAJAN
SECRETARY

Dear,

The Department of Science & Technology has been conducting National surveys from time to time to collect data on the resources devoted to Research and Development (R&D) activities in the country. The data so collected is used to bring out a number of reports from time to time. The latest report for the year 1980-81 can be supplied on request.

We are now planning to collect information for the year 1982-83. Two copies of the questionnaire designed for collecting necessary information have been mailed to your research institutions/laboratories listed in Annexure-I. You are requested to kindly issue necessary instructions to these laboratories asking them to supply information within a month. In case some of your research institutions/laboratories have been left out in the list enclosed, the particulars thereof may kindly be sent to the officer of this Department whose contact address is given below, so that we may get in touch with them quickly by sending them also these questionnaires.

Dr. (Mrs.) A.R. Rajeswari,
Principal Scientific Officer,
Deptt. of Science & Technology,
Government of India,
Technology Bhawan,
New Mehrauli Road,
New Delhi-110016.
Telephone: 662639/662260

I seek your cooperation in advising your institutions to fill and send the questionnaires early to us so that timely reports based on the national surveys like the one now being conducted could be brought out.

With regards,

Yours sincerely.

(S. VARADARAJAN)

Encls: As above.

INSTRUCTIONS FOR FILLING UP VARIOUS QUESTIONS OF THE QUESTIONNAIRE

GENERAL INSTRUCTIONS

- (i) Please ensure that the **number of characters/alphabets does not exceed the number of boxes** given. Wherever necessary, **abbreviations may be used**.
- (ii) All **characters/alphabets** should be filled in Block Letters.
- (iii) Please fill complete information for the items applicable to your institution/company, in case exact data are not available, use estimates.
- (iv) Please stick to the units in which figures are asked (e.g. **Rs. lakhs should be given in Rs. Lakhs** only and not in Rs. thousands or crores).
- (v) If the **serial number is printed please do not change it**, in case it is not printed but the boxes are provided, put **serial number in the boxes against which you are filling information**. Please ensure that the **serial number is continuous** within the card code.
- (vi) Please ensure that **last two boxes in each case are filled with numeric value after decimal point** (leaving aside SECTION C). **Please do not put decimal point in the Boxes**. (e.g. Rs. 20.434 lakhs should be given after being adjusted to two decimal places in the boxes as shown):

| | | | | | |
|--|--|---|---|---|---|
| | | 2 | 0 | 4 | 3 |
|--|--|---|---|---|---|

SECTION : A

- Q. III** List of major scientific agencies, Central Govt. Ministries and State Govts, with appropriate code numbers is enclosed as Annexure 'B'. Please consult this list before filling the information in one of the Boxes against Q. III.
- Q. IV** The basic idea in asking this question is to have a very broad idea about the nature of activities carried out by the research institutions. It is fully realised that **the information being supplied is very rough estimate** as no separate account is being maintained in respect of various activities. You are requested to kindly **complete this question without fall**.

SECTION : B

- Q. III & IV** Indicate serial number against the Boxes for which you have filled the information. If you have filled information for row 1 put serial number as 01 and after that if you have filled row 4 put serial number as 02.

QUESTIONNAIRE-I

(For scientific and technological Institutions under the Central and State Govts. other than productive enterprises).
Information on Resources devoted to Research & Development 1982-83

Please read the enclosed instructions before completing this form. Please seek any clarifications regarding the questionnaire from Dr. (Mrs) A.R. Rajeswari/Shri R.R. Gulati. Where exact data is not available use estimates.

Name and Address of the Organisation

The completed questionnaire should be returned to:

Dr. (Mrs) A.R. Rajeswari
Department of Science & Technology,
Technology Bhavan,
New Mehrauli Road,
New Delhi - 110 016

Telephone: 662639/662260 (Extn. 207)
Gram: SCIENCTECH
Telex: 31-2096 DST IN

Question filled by _____

Signature _____

Place _____

Date _____

[illegible]

SECTION A: GENERAL INFORMATION

[illegible]

MONTH

| YEAR | | | | |
|------|--|--|--|--|
| | | | | |

48 51

Q. III) Administrative controlling authority of the establishment. Fill one of the boxes with appropriate code number, depending on whether the controlling authority is a major scientific agency or a Central Ministry/Department or State Govt. and also tick that Box. Code numbers are given in the attached sheets. (Annexure B)

A = Major Scientific Agency
C = Central Ministry/Department
S = State Govt.

| | | | |
|---|--|--|--|
| A | | | |
|---|--|--|--|

52 54

A = Major Scientific Agency
C = Central Ministry/Department
S = State Govt.

CENTRAL MINISTRY/DEPARTMENT

| | | | |
|---|--|--|--|
| C | | | |
|---|--|--|--|

52 54

Q. IV) Estimated Percentage of time/resources devoted to the following activities.
(for example 25.4% may be indicated in the Boxes as below)

| | | | |
|---|---|---|---|
| 0 | 2 | 5 | 4 |
|---|---|---|---|

(a) Basic Research

(b) Applied Research

| | | | | |
|--|--|--|--|--|
| | | | | |
|--|--|--|--|--|

59 62

(c) Experimental Development

(d) Other activities

(e) Total

| | | | |
|---|---|---|---|
| 1 | 0 | 0 | 0 |
|---|---|---|---|

Note: $(1+1+1+1) = 4 \times 0.75 = 3$

Note: $(a+b+c+d) = 100.0\%$

Please see Annexure 'A' for definitions.

BOX 1 TO 6 NOT TO BE FILLED BY RESPONDENTS

CARD CODE

| | |
|---|---|
| 0 | 2 |
|---|---|

1 2

SEQUENCE NUMBER

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

3 6

TO BE FILLED BY RESPONDENTS

SECTION B: EXPENDITURE ON SCIENCE & TECHNOLOGY

Q. D

Please give information for expenditure on Science & Technological activities in the boxes given below. (e.g. Rs. 230.45 lakhs should be written in boxes as):

| | | | | | | |
|---|---|---|---|---|---|---|
| 0 | 0 | 2 | 3 | 0 | 4 | 5 |
|---|---|---|---|---|---|---|

EXPENDITURE CODE

| |
|---|
| T |
|---|

7

EXPENDITURE IN RS. LAKHS

| | Actual | Actual or RE(a) | RE or BE (b) |
|-----------------------|---|---|---|
| | 1980-81 | 1981-82 | 1982-83 |
| Revenue/Recurring | <div><div>8</div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>14</div> | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>15</div> <div>21</div> | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>22</div> <div>28</div> |
| Capital/Non Recurring | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>29</div> <div>35</div> | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>36</div> <div>42</div> | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>43</div> <div>49</div> |
| Total Expenditure | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>50</div> <div>56</div> | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>57</div> <div>63</div> | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>64</div> <div>70</div> |

Note: (a) Actual expenditure is preferred. In the absence of actual please provide the revised estimate.
(b) Revised estimate is preferred. In the absence of revised estimate, please provide budgetted estimate. RE = Revised Estimate
BE = Budget Estimate.
(c) Contributions to outside bodies as indicated against Question III on page 4 should also be included above under the appropriate heading.
Please see Annexure 'A' for definitions.

BOX 1 TO 6 NOT TO BE FILLED BY RESPONDENTS
CARD CODE

| | |
|---|---|
| 0 | 3 |
|---|---|

1 2

SEQUENCE NUMBER

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

3 6

TO BE FILLED BY RESPONDENTS

Q. II) Please give information for foreign exchange Component of expenditure indicated in Q. I in Boxes 50 to 70 (e.g. foreign exchange component of Rs. 20.34 lakhs should be written in boxes as.):

| | | | | | |
|---|---|---|---|---|---|
| 0 | 0 | 2 | 0 | 3 | 4 |
|---|---|---|---|---|---|

| YEAR | FOREIGN EXCHANGE (in Rs. lakhs) | | | | | | | | | | |
|---------|--|----|--|--|--|--|--|--|--|----|----|
| 1980-81 | <table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | | | | |
| | | | | | | | | | | | |
| | 7 | 12 | | | | | | | | | |
| 1981-82 | <table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | | | 13 | 18 |
| | | | | | | | | | | | |
| 1982-83 | <table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | | | 19 | 24 |
| | | | | | | | | | | | |

| | |
|---|---|
| 0 | 5 |
|---|---|

1 2

TO BE FILLED BY RESPONDENTS

Q. IV) Please indicate the sources of funds for S&T activities in the boxes given below (e.g. Rs. 23.456 lakhs may be written as:-

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

3 6

| | | | | | |
|--|--|---|---|---|---|
| | | 2 | 3 | 4 | 6 |
|--|--|---|---|---|---|

FINANCIAL SUPPORT FROM CONTROLLING AUTHORITY (PLEASE GIVE NAME). CODE

(FUNDS IN RS. LAKHS)

1980-81

1982-83

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <table border="1"> <tr> <td></td> <td></td> </tr> </table> | | | <table border="1"> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 9 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 1 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 40 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 45 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>51</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 51 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>52</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 52 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>57</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 57 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 8 | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SUPPORT FROM MINISTRIES/DEPARTMENTS

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <table border="1"> <tr> <td></td> <td></td> </tr> </table> | | | <table border="1"> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 9 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 2 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 40 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 45 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>51</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 51 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>52</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 52 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>57</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 57 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 8 | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <table border="1"> <tr> <td></td> <td></td> </tr> </table> | | | <table border="1"> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 9 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 2 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 40 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 45 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>51</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 51 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>52</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 52 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>57</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 57 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 8 | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

128

SUPPORT FROM STATE GOVERNMENTS

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <table border="1"> <tr> <td></td> <td></td> </tr> </table> | | | <table border="1"> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 9 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 3 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 40 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 45 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>51</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 51 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>52</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 52 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>57</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 57 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 8 | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SUPPORT FROM PUBLIC TRUST

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <table border="1"> <tr> <td></td> <td></td> </tr> </table> | | | <table border="1"> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 9 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 4 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 40 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 45 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>51</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 51 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>52</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 52 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>57</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 57 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 8 | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SUPPORT FROM FOREIGN AGENCIES

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <table border="1"> <tr> <td></td> <td></td> </tr> </table> | | | <table border="1"> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 9 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 5 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 40 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 45 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>51</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 51 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>52</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 52 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>57</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 57 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 8 | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <table border="1"> <tr> <td></td> <td></td> </tr> </table> | | | <table border="1"> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 9 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 5 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 40 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 45 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>51</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 51 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>52</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 52 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>57</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 57 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 8 | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

ANY OTHER SOURCE OF INCOME

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <table border="1"> <tr> <td></td> <td></td> </tr> </table> | | | <table border="1"> <tr> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 9 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 6 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 40 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 45 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>51</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 51 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>52</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 52 | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>57</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | 57 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 8 | 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note: (a) Before filling this page please go through the instruction sheet.

(b) As all the possible sources of funding have been included above, the total expenditure of your institution/laboratory for each year as given against Q. I should be equal to or less than corresponding totals above.

BOX 1 TO 6 NOT TO BE FILLED BY RESPONDENTS
CARD CODE

| | |
|---|---|
| 0 | 7 |
|---|---|

1 2

TO BE FILLED BY RESPONDENTS

Q. ID Number of personnel engaged on research & development as on 1st April, 1982

(Example 203 persons should be written as given below):

| | | | |
|---|---|---|---|
| 0 | 2 | 0 | 3 |
|---|---|---|---|

Q. IID Number of Scientific and technical personnel engaged on auxiliary scientific/technical activities including skilled workers and technicians.

Q. IIID Number of personnel employed on administrative and other nontechnical activities including class IV unskilled staff.

Note: a) Please allocate all personnel to three categories on functional basis rather than on the basis of qualifications.
b) All the staff working in your laboratory should be included in the appropriate categories.

SEQUENCE NUMBER

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

3 6

SECTION C: MANPOWER EMPLOYED:

| | MALE | | | | FEMALE | | | | TOTAL | | | |
|--|-----------|--|--|----|-----------|--|--|----|-----------|--|--|----|
| | PART TIME | | | | PART TIME | | | | PART TIME | | | |
| | 7 | | | 10 | 11 | | | 14 | 15 | | | 18 |
| | FULL TIME | | | | FULL TIME | | | | FULL TIME | | | |
| | 19 | | | 22 | 23 | | | 26 | 27 | | | 30 |
| | PART TIME | | | | PART TIME | | | | PART TIME | | | |
| | 31 | | | 34 | 35 | | | 38 | 39 | | | 42 |
| | FULL TIME | | | | FULL TIME | | | | FULL TIME | | | |
| | 43 | | | 46 | 47 | | | 50 | 51 | | | 54 |
| | PART TIME | | | | PART TIME | | | | PART TIME | | | |
| | 55 | | | 58 | 59 | | | 62 | 63 | | | 66 |
| | FULL TIME | | | | FULL TIME | | | | FULL TIME | | | |
| | 67 | | | 70 | 71 | | | 74 | 75 | | | 78 |

BOX 1 TO 6 NOT TO BE FILLED BY RESPONDENTS
CARD CODE

| | |
|---|---|
| 1 | 2 |
|---|---|

1 2

TO BE FILLED BY RESPONDENTS

Q. VIII) Please furnish the following information on total number of papers/Books/Regular reports/adhoc reports published and number of S&T personnel deputed for various national and international seminars.

SEQUENCE NUMBER

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

3 6

YEARS

1980-81

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

7

10

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

19

22

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

31

34

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

43

46

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

55

58

1981-82

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

11

14

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

23

26

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

35

38

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

47

50

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

59

62

1982-83

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

15

18

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

27

30

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

39

42

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

51

54

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

63

66

a) Papers published

b) Books published

c) Regular Reports published

d) Adhoc Reports published

e) Number of S&T personnel deputed for various national and international seminars.

ANNEXURE-A

DEFINITIONS FOR FILLING UP THE QUESTIONNAIRE

1. **Basic research** may be defined as any experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular or specific application or use in view.
2. **Applied research** may be defined as any original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a **specific** practical aim or objective.
3. **Experimental development** may be defined as any systematic work, drawing on existing knowledge gained from research and/or practical experience that is directed to producing new materials, products and devices, to installing new processes, systems and services, and to improving substantially those already produced or installed.
4. **Other activities:** Those activities concerned with scientific research and experimental development and contributing to the generation, dissemination and application of scientific and technical knowledge. These activities would include S&T services provided by libraries, information and documentation centres data banks and information processing departments, Botanical and Zoological gardens, topographical, geological and hydrological surveying meteorological and seismological observations, surveying of soils, plants etc.
5. **Revenue or Recurring expenditure:**
It includes the cost of wages, salaries and all related labour costs, minor equipment, expendable supplies and expenditure on office and labour supplies, materials, books, journals, rent of buildings, travel and postal services.
6. **Capital/Non-recurring expenditure:**
Expenditure on purchase of major installation, machinery and equipment, land for building, new buildings or large scale improvements, modifications and repairs to buildings and fixed installations, land improvement work and other expenditure.

CODE NUMBERS

| Name of Major Scientific Agency | | Code No. | | |
|---|--|----------|---------------------------|----|
| Department of Atomic Energy | | 01 | Works & Housing | 24 |
| Council of Scientific & Industrial Research | | 02 | Textiles | 25 |
| Defence Research & Development Organisation | | 03 | Civil Supplies | 26 |
| Indian Council of Agricultural Research | | 04 | Name of the State | |
| Indian Council of Medical Research | | 05 | Code No. | |
| Department of Science & Technology | | 06 | Andaman & Nicobar Islands | 01 |
| Department of Space | | 07 | Andhra Pradesh | 02 |
| Department of Electronics | | 08 | Arunachal Pradesh | 03 |
| Department of Environment | | 09 | Assam | 04 |
| Department of Ocean Development | | 10 | Bihar | 05 |
| Name of Ministry/Department | | Code No. | Chandigarh | 06 |
| Agriculture | | 01 | Delhi | 07 |
| Food | | 02 | Dadra & Nagar Haveli | 08 |
| Irrigation | | 03 | Goa, Daman & Diu | 09 |
| Commerce | | 04 | Gujarat | 10 |
| Chemicals & Fertilizers | | 05 | Haryana | 11 |
| Communications | | 06 | Himachal Pradesh | 12 |
| Defence Production | | 07 | Jammu & Kashmir | 13 |
| Education | | 08 | Karnataka | 14 |
| Energy (Coal) | | 09 | Kerala | 15 |
| Energy (Power) | | 10 | Lakshadweep | 16 |
| Health & Family Welfare | | 11 | Madhya Pradesh | 17 |
| Home Affairs | | 12 | Maharashtra | 18 |
| Information & Broadcasting | | 13 | Manipur | 19 |
| Industry (Heavy Industry) | | 14 | Meghalaya | 20 |
| Industry (Industrial Development) | | 15 | Mizoram | 21 |
| Petroleum | | 16 | Nagaland | 22 |
| Railways | | 17 | Orissa | 23 |
| Shipping & Transport | | 18 | Pondicherry | 24 |
| Steel | | 19 | Punjab | 25 |
| Mines | | 20 | Rajasthan | 26 |
| Statistics | | 21 | Sikkim | 27 |
| Supply & Rehabilitation | | 22 | Tamil Nadu | 28 |
| Tourism & Civil Aviation | | 23 | Tripura | 29 |
| | | | Uttar Pradesh | 30 |
| | | | West Bengal | 31 |

ACKNOWLEDGEMENT CARD

FROM

SUB:- NATIONAL SURVEY OF SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES 1982-83

Dear Madam,

This is to acknowledge the receipt of your letter along with two copies of the questionnaire No. ARR/DST/R&D Stat/83 Dated _____ on the above subject. Further correspondence on the subject may be addressed to the officer, whose particulars are given below:-

Name _____

Designation _____

Mailing address _____

SIGNATURE:

INSTRUCTIONS FOR FILLING UP VARIOUS QUESTIONS OF THE QUESTIONNAIRE

GENERAL INSTRUCTIONS

- (i) Please ensure that the **number of characters/alphabets does not exceed the number of boxes** given. Wherever necessary, **abbreviations may be used**.
- (ii) All **characters/alphabets** should be filled in Block Letters.
- (iii) Please fill complete information for the items applicable to your institution/company, in case exact data are not available, use estimates.
- (iv) Please stick to the units in which figures are asked (e.g. **Rs. lakhs should be given Rs. Lakhs** only and not in Rs. thousands or crores).
- (v) If the **serial number is printed please do not change it**, in case it is not printed but the boxes are provided, put **serial number in the boxes against which you are filling information**. Please ensure that the **serial number is continuous** within the card code.
- (vi) Please ensure that **last two boxes in each case are filled with numeric value after decimal point** (leaving aside SECTION C). **Please do not put decimal point in the Boxes**. (e.g. Rs. 20.434 lakhs should be given after being adjusted to two decimal places in the boxes as shown):

| | | | | | |
|--|--|---|---|---|---|
| | | 2 | 0 | 4 | 3 |
|--|--|---|---|---|---|

SECTION: A

Q. II: List of different ministries and state govts. with appropriate codes is enclosed as Annexure-B. If yours is a public sector company, consult this list before filling the information in one of the boxes against Q. II.

Q. VIII A & VIII B:

If information is filled for Q. VIII A, please see that Q. VIII B, is also completed. Details need not be given for agreements which have expired or terminated.

Q. X: The information regarding expenditure on new plant and machinery should include plant and machinery for production purpose as well as for R&D acquired during the year.

SECTION: B

Q. II: Please indicate the location of R&D unit with the help of State code given in Annexure B.

Q. V: Indicate serial number against the organisation to which financial contribution is made. (e.g. your Company has made contributions to Co-operative Research Association and other research Institutions. Put serial number 01 for Co-operative Research Association (if any one Co-operative Research Association is there) and 02 for other research Institute).

QUESTIONNAIRE-II

(For the in-house R&D units of the Productive enterprises both in Public/Private Sector)

Information on Resources devoted to Research & Development 1982-83

Name and address of the Unit

Please read the enclosed instructions before completing this form. Please seek any clarifications on the questionnaire from Dr (Mrs) A.R. Rajeswari/Shri R. Chetal. Where exact data is not available, use estimates.

The completed questionnaire should be returned to

Dr (Mrs) A.R. Rajeswari

Department of Science & Technology

Government of India

Technology Bhavan.

New Mehrauli Road,

New Delhi-110016.

Telephone No. 662639/662260 (Extn. 207)

Telegramme: SCIENTECH

Telex: 31-2096 DST IN

Questionnaire filled by _____

Signature _____

Place _____

Date _____

floppy 026 job 125 m.s. 147 only

CARD CODE

| | |
|---|---|
| 2 | 0 |
|---|---|

SEQUENCE NUMBER

| |
|--|
| |
| |
| |
| |

S.R.A. O.R.D. F.S. I.G.

| | |
|--|--|
| | |
| | |
| | |
| | |
| | |
| | |

126714

TO BE FILLED BY RESPONDENTS

Q. D Name of the Company (In block letters, Box 15 to Box 64

SECTION A: General Information

[illegible]15[illegible]64

Q. ID **If yours is a Public Sector/Joint Sector Company,**
fill one of Boxes (column 66 and 67 with the appropriate
code numbers given in the attached sheets and also tick
that Box depending on whether the controlling authority
is one of the Central Ministries or State Governments.
(C = CENTRAL MINISTRY S = STATE GOVT.)

| | | |
|--|--|--|
| | | |
| | | |
| | | |

69 59

| |
|---|
| |
| |
| S |

Q. III) Category of firm (Please tick Mark the appropriate Box against each item Y = YES N = NO)

65 67

Z
Y

100

100

114

111

111

114

115

| | | | |
|--|--|--|--|
| | | | |
| | | | |

75 7575 75

CARD CODE

SEQUENCE NUMBER

| | |
|---|---|
| 2 | 1 |
|---|---|

| |
|--|
| |
| |
| |
| |

1

2

3

6

TO BE FILLED BY RESPONDENTS

Q. VII If the answer to question IV. is yes, please indicate the foreign holdings as on 1st April, 1982

[illegible]

SEQUENCE NUMBER

| | |
|---|---|
| 2 | 3 |
|---|---|

| |
|--|
| |
| |
| |
| |

12

6

Q. VIII(B) If question VIII A is filled, please furnish the following details for items of manufacture under collaboration.

PAYMENT MADE DURING 1981-82 (Rs. Lakhs)

Sl. No.

ITEMS OF MANUFACTURE (IN BLOCK LETTERS)

87

[illegible]

9

7

48

| | |
|--|--|
| | |
| | |

[illegible]

| | |
|--|--|
| | |
| | |

[illegible]

| | |
|--|--|
| | |
| | |

[illegible]

| | |
|--|--|
| | |
| | |

[illegible][illegible]

*Please indicate whether the imported technology has been adapted or not.

BOX 1 TO 6 NOT TO BE FILLED BY RESPONDENTS

CARD CODE

| | |
|---|---|
| 2 | 4 |
|---|---|

1 2

SEQUENCE NUMBER

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

3 6

TO BE FILLED BY RESPONDENTS

Q. IX) Gross turnover in Rs. Crores for 1980-81 to 1982-83 (Please fill as indicated in the example)
(e.g. Rs. 30.45 crores should be written as indicated in the box below)

| | | | | | |
|---|---|---|---|---|---|
| 0 | 0 | 3 | 0 | 4 | 5 |
|---|---|---|---|---|---|

YEAR

| | 1980-81 | 1981-82 | 1982-83 | | | | | | | | | | | | | | | | | | |
|---|---|---------|---------|--|--|--|--|---|--|--|--|--|--|--|---|--|--|--|--|--|--|
| 7 | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | 12 | 13 | 19 | | | | | | | | | | | | | | | | | | |
| | | | 24 | | | | | | | | | | | | | | | | | | |

Turnover (In Rs. crores)

Q. X) Expenditure on advertisement and new plant & machinery for the whole company including R&D in Rs. lakhs for the years 1980-81 to 1982-83 (Please fill as indicated in the example)
(e.g. Rs. 28.466 lakhs should be written in the box as indicated below after rounding it to two places of decimal)

| | | | | | |
|---|---|---|---|---|---|
| 0 | 0 | 2 | 8 | 4 | 7 |
|---|---|---|---|---|---|

YEAR

Expenditure on advertising (Rs. lakhs)

| | 1980-81 | 1981-82 | 1982-83 | | | | | | | | | | | | | | | | | | |
|----|---|---------|---------|--|--|--|--|---|--|--|--|--|--|--|---|--|--|--|--|--|--|
| 25 | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | 30 | 42 | 54 | | | | | | | | | | | | | | | | | | |
| 31 | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | 36 | 48 | 60 | | | | | | | | | | | | | | | | | | |
| 37 | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | 43 | 55 | 60 | | | | | | | | | | | | | | | | | | |

Expenditure on new plants & machinery (Rs. lakhs)

BOX 1 TO 6 NOT TO BE FILLED BY RESPONDENTS

CARD CODE

| | |
|---|---|
| 2 | 5 |
|---|---|

1 2

SEQUENCE NUMBER

| | | |
|--|--|--|
| | | |
|--|--|--|

3 6

TO BE FILLED BY RESPONDENTS

ID Month and Year from which R&D work has been taken up

IID *Location of R&D unit (Please fill the State code given in the Annexure B).

IIID Expenditure on R&D only for the years 1980-81 to 1982-83 in lakhs of Rupees. (Please fill the figures as indicated in the example below and also complete Annexure A) (e.g. Rs. 19.343 lakhs should be filled in the box as:)

| | | | | | | |
|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 9 | 3 | 4 |
|---|---|---|---|---|---|---|

SECTION B: RESEARCH AND DEVELOPMENT

| | | | |
|-------|---|------|----|
| MONTH | | YEAR | |
| | | | |
| 7 | 8 | 6 | 12 |

| | | | |
|----|----|--|--|
| | | | |
| 13 | 14 | | |

YEAR

1980-81 1981-82 1982-83

Revenue/Recurring expenditure (Rs. lakhs)

Capital expenditure (Rs. lakhs)

Total expenditure (Rs. lakhs)

| | | | | | |
|----|----|----|----|----|----|
| 15 | 21 | 22 | 28 | 29 | 35 |
| 36 | 42 | 43 | 49 | 50 | 56 |
| 57 | 63 | 64 | 70 | 71 | 77 |

*If you have more than one R&D unit, please fill the Questions I, II, III in Section B above separately for each of such R&D unit.

BOX 1 TO 6 NOT TO BE FILLED BY RESPONDENTS

CARD CODE

| | |
|---|---|
| 2 | 6 |
|---|---|

1 2

SEQUENCE NUMBER

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

3 6

TO BE FILLED BY RESPONDENTS

Q. IV) Please give the following information about foreign exchange component of total R&D expenditure of your company in lakhs of rupees for years 1980-81 to 1982-83 (e.g. Rs. 2.49 lakhs should be filled as)

| | | | | | |
|---|---|---|---|---|---|
| 0 | 0 | 0 | 2 | 4 | 9 |
|---|---|---|---|---|---|

| YEAR | Foreign exchange component (in Rs. lakhs) | | | | | | | | | | | | | | | | | | | |
|---------|--|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|--|--|
| 1980-81 | <table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | 7 | | | | | | | | | 12 | | | | | | | | | | |
| 1981-82 | <table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | 13 | | | | | | | | | 18 | | | | | | | | | | |
| 1982-83 | <table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | 19 | | | | | | | | | 24 | | | | | | | | | | |

BOX 1 TO 6 NOT TO BE FILLED BY RESPONDENTS

CARD CODE

| | |
|---|---|
| 2 | 8 |
|---|---|

1 2

SEQUENCE NUMBER

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

3 6

TO BE FILLED BY RESPONDENTS

SECTION C: MANPOWER

D Give details of full time personnel employed in your company as on 1st April, 1982 as below:

*TOTAL NO. OF EMPLOYEES ON THE PAY ROLL OF THE COMPANY

| | | | | |
|--|--|--|--|--|
| | | | | |
|--|--|--|--|--|

7

11

**NO. OF SCIENTIFIC & TECHNICAL (S&T) PERSONNEL EMPLOYED R&D ONLY.

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

12

15

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

19

PERSONNEL EMPLOYED ON AUXILIARY ACTIVITIES IN THE R&D UNIT

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

20

23

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

24

27

PERSONNEL EMPLOYED FOR ADMINISTRATIVE WORK IN R&D UNIT.

| | | | | |
|--|--|--|--|--|
| | | | | |
|--|--|--|--|--|

28

32

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

33

36

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

37

40

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

41

44

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

45

48

| | | | | |
|--|--|--|--|--|
| | | | | |
|--|--|--|--|--|

49

53

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

54

57

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

58

61

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

62

65

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

66

69

*This will include all category of personnel employed viz. those employed in Production, Marketing, Sales, R&D etc.

**This will refer to all Scientific and Technical personnel working in all departments of the organisation i.e. in Production, Marketing, Sales, R&D etc.

BOX 1 TO 6 NOT TO BE FILLED BY RESPONDENTS

CARD CODE

| | |
|---|---|
| 2 | 9 |
|---|---|

1 2

SEQUENCE NUMBER

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

3 6

TO BE FILLED BY RESPONDENTS

ID Give details of Part time personnel as on 1st April, 1982 employed in your company as categorized below:

*TOTAL NO. OF EMPLOYEES ON THE PAY ROLL OF THE COMPANY

**NO. OF SCIENTIFIC & TECHNICAL (S&T) PERSONNEL EMPLOYED R&D ONLY.

PERSONNEL EMPLOYED ON AUXILIARY ACTIVITIES IN THE R&D UNIT.

PERSONNEL EMPLOYED FOR ADMINISTRATIVE WORK IN R&D UNIT.

TOTAL

7

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

11

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

12

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

15

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

16

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

19

MALE

28

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

32

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

33

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

36

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

37

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

40

FEMALE

49

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

53

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

54

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

57

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

58

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

61

*This will include all category of personnel employed viz. those employed in Production, Marketing, Sales, R&D etc.

**This will refer to all Scientific and Technical personnel working in all departments of the organisation i.e. in Production, Marketing, Sales, R&D etc.

ANNEXURE-A

DEFINITIONS FOR FILLING UP THE QUESTIONNAIRE

1. **Revenue or Recurring expenditure:**

It includes the cost of wages, salaries and all related labour costs, minor equipment, expendable supplies and expenditure on office and labour supplies, materials, books, journals, rent of buildings, travel and postal services.

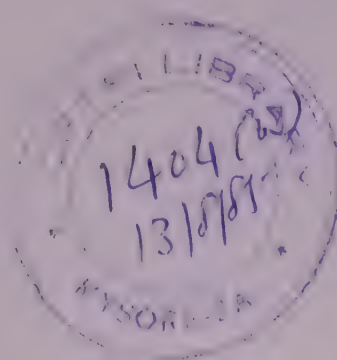
2. **Capital Non-recurring expenditure:**

Expenditure on purchase of major installation, machinery and equipment, land for building, new buildings or large scale improvements, modifications and repairs to buildings and fixed installations, land improvement works and other expenditures.

ANNEXURE-B

CODE NUMBERS

| Name of Major Scientific Agency | Code NO. | | |
|---|-----------------|---------------------------|-----------------|
| Department of Atomic Energy | 01 | Works & Housing | 24 |
| Council of Scientific & Industrial Research | 02 | Textiles | 25 |
| Defence Research & Development Organisation | 03 | Civil Supplies | 26 |
| Indian Council of Agricultural Research. | 04 | Name of the State | Code NO. |
| Indian Council of Medical Research | 05 | | |
| Department of Science & Technology | 06 | Andaman & Nicobar Islands | 01 |
| Department of Space | 07 | Andhra Pradesh | 02 |
| Department of Electronics | 08 | Arunachal Pradesh | 03 |
| Department of Environment | 09 | Assam | 04 |
| Department of Ocean Development | 10 | Bihar | 05 |
| | | Chandigarh | 06 |
| Name of Ministry/Department | Code NO. | Delhi | 07 |
| | | Dadra & Nagar Haveli | 08 |
| Agriculture | 01 | Goa, Daman & Diu | 09 |
| Food | 02 | Gujarat | 10 |
| Irrigation | 03 | Haryana | 11 |
| Commerce | 04 | Himachal Pradesh | 12 |
| Chemicals & Fertilizers | 05 | Jammu & Kashmir | 13 |
| Communications | 06 | Karnataka | 14 |
| Defence Production | 07 | Kerala | 15 |
| Education | 08 | Lakshadweep | 16 |
| Energy (Coal) | 09 | Madhya Pradesh | 17 |
| Energy (Power) | 10 | Maharashtra | 18 |
| Health & Family Welfare | 11 | Manipur | 19 |
| Home Affairs | 12 | Meghalaya | 20 |
| Information & Broadcasting | 13 | Mizoram | 21 |
| Industry (Heavy Industry) | 14 | Nagaland | 22 |
| Industry (Industrial Development) | 15 | Orissa | 23 |
| Petroleum | 16 | Pondicherry | 24 |
| Railways | 17 | Punjab | 25 |
| Shipping & Transport | 18 | Rajasthan | 26 |
| Steel | 19 | Sikkim | 27 |
| Mines | 20 | Tamil Nadu | 28 |
| Statistics | 21 | Tripura | 29 |
| Supply & Rehabilitation | 22 | Uttar Pradesh | 30 |
| Tourism & Civil Aviation | 23 | West Bengal | 31 |



PNCST.7.82-83(N)

2000-1984 (DSK.II)

Price: Rs. 51 £ 5.95R \$ 18 36 Cents

PUBLISHED BY THE CONTROLLER OF PUBLICATIONS, DELHI-110 054
AND PRINTED AT AJANTA OFFSET & PACKAGINGS LIMITED, DELHI-52